



INVITATION FOR BID (IFB)

SECTIONS B1 THROUGH B35 EXPLAIN IN DETAIL THE BID REQUIREMENTS
February 02, 2016

Solicitation Number B16-022 NS

City of Colorado Springs Construction Project

UTE VALLEY PARK TRAILHEAD AT UTE VALLEY PARK

FOR
CITY OF COLORADO SPRINGS
PARKS & RECREATION DIVISION

PRE-BID CONFERENCE

A Pre-bid conference is not scheduled for this solicitation. See Schedule B., Paragraph B.3

OFFERS DUE:

2:00 P.M., MARCH 2, 2016

Contact
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E-mail: nspindler@springsgov.com

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SCHEDULE A

BID FORM

The undersigned declares that it has carefully examined the bid information and the complete Solicitation, (The term solicitation means the complete invitation for bid) in submitting a bid for “**UTE VALLEY PARK TRAILHEAD AT UTE VALLEY PARK**” The Offeror’s signature will be considered the offeror’s acknowledgment of understanding and ability to comply with all items in this solicitation.

The Offeror’s signature will be considered the offerors acknowledgment of understanding and ability to comply with all items in this solicitation. If an offeror makes any changes or corrections to the bid documents (such as white out, or writing over a figure, etc.) such changes or corrections must be initialed and dated by the person signing the offer prior to its submittal.

TOTAL BID will be evaluated and awarded as follows: The City of Colorado Springs intends to award a contract to the lowest responsible and responsive bidder as specified in B. 15. Each bidder will provide pricing for each area listed in the following documentation.

OFFER

Item No.	Description	EST Quantity	Units	Unit Cost	Total Cost
1	Mobilization	1	LUMP SUM		
2	Clearing and Grubbing	1	LUMP SUM		
4	Silt Fencing	22'	LF		
5	Stormwater Stilling Basin and 3' Rip Rap Swale	1	LUMP SUM		
6	Curb and Gutter – Type 1	1428	LF		
7	Curb and Gutter – Type 3	902	LF		
8	Curb and Gutter Truck Apron	268	LF		
9	Pedestrian Ramps (per City Code)	5	EA		
10	Stamped Concrete in medians	1827	SF		
11	Asphalt – Subbase Preparation	4580	SY		
12	Class 6 - 8" Aggregate Base Course (ABC)	4580	SY		
13	Asphalt – Full Depth 4" thick	2825	SY		
14	Asphalt Millings – Parking Lot	1758	SY		
15	Parking Lot Stripping	499	LF		
16	Thermoplastic Epoxy	1883	SF		
	Curb stops	30	EA		
17	MSE Block Wall	71	LF		
18	6' Gravel Trail	2260	LF		

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19	8' Gravel Trail	150	LF		
20	Installation of Street Signs and Barricades	1	LUMP SUM		
21	4'D-10-R Sump Inlet	1	EA		
22	Foothills Seed Mix	1	LUMP SUM		
23	Traffic Control	1	LUMP SUM		
	TOTAL BASE BID				\$ _____

Construction Manager's Supplemental Bid Notes: (if applicable)

- 1) The owner shall select a testing agency and pay for soil proctors, compaction testing, asphalt, and concrete testing. It will be the owner's determination the amount and frequency of testing to be performed. The contractor shall be responsible to call owner's representative a minimum of 24 hours in advance to schedule testing for work to be performed. Additional testing required for compliance due to non-compliance with specifications shall be paid by the contractor until compliance has been met.
- 2) The contractor shall coordinate inspections for the following: rough grading, fine grading, compaction, forming & reinforcement, concrete placement & finishing, asphalt placement & finishing, vegetation of site, and final inspection. A minimum of 24 hours of notice to the owner's representative, agencies with jurisdiction, and designated parties is required prior to commencement of work.
- 3) The contractor shall submit a project schedule to the owner's representative prior to the pre-construction meeting. The contractor shall submit weekly updated schedules during the project until completion. The contractor shall submit a schedule of values to the owner's representative prior to the pre-construction meeting.
- 4) The contractor shall be responsible for cost and management of obtaining proper traffic control during the duration of the project. Supply, erect, and maintain construction safety fencing as indicated on plans. Contractor shall remove fence from site upon project completion.
- 5) All survey and layout needed to perform the scope of work shall be considered incidental to the project and at the contractor's expense.
- 6) Remove and legally dispose of debris to offsite location as needed to complete the project. Earthwork required to complete all contract work items including, but not limited to the following: import & installation of asphalt millings, export excess materials off-site, backfill, compaction, rough grading and final grading. These are an incidental costs to be paid by the contractor.
- 7) Acquire and manage all permits necessary to perform project. The contractor shall also call for utility locates and supply the owner's representative a copy of the locate sheets 72 hours prior to any earthwork activity.
- 8) The contractor shall clear and grub vegetation as necessary to conduct work and dispose of the debris legally offsite.
- 9) New 4000psi concrete: Curb and gutter per City of Colorado Springs Engineering Standards.
- 10) The contractor shall repair or replace any damaged areas during construction, including but

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limited to concrete, asphalt, revegetation, trees, or trails. Any disturbed areas outside the scope of work shall be reclaimed with native seeding.

- 11) Bidders are to include all costs within mobilization associated with the following specific items that are considered incidental to completing the bid items and will not be paid for separately:
 - a) Erosion control, erosion control inspector, vehicle tracking mat, weather protection and tree protection.
 - b) Surveying, field staking, and layout.
 - c) Barricades, signage and safety fencing.
 - d) Required permits from local jurisdictions and agencies; including, but not limited to, State of Colorado Stormwater Permit
 - e) Legal, off-site disposal of demolished / surplus materials, concrete washout structures, and construction debris.
 - f) Site toilets.
 - g) Protection of existing improvements within & outside of the construction zone; including, but not limited to, tree protection.
 - h) Protection of new work completed until final acceptance by owner.
 - i) Daily, weekly and final cleanup of site.
- 12) The existing storm pipe crossing at the roundabout to be evaluated in the field for usable condition. Existing storm pipe to be extended to connect to storm pipe stub installed by others with HP sewer construction project.
- 13) The Truck Apron needs to be 4", see detail on sheet 2 of the construction drawings.
- 14) Stamped concrete pattern to be "Large Garden Stone" pattern or equal. Color to be terra cotta.
- 15) The 6' and 8' trail alongside Ute Valley Trail and within trailhead parking area to be "Cimarron Breeze" or equal. Trail to be a minimum of 4" thick.
- 16) Asphalt Millings for the trailhead parking area to be supplied by the City of Colorado Springs. Contractor responsible for delivery to site and installation.
- 17) The construction of the port-a-let enclosure is not part of this contract. It will be bid under a separate masonry contract.
- 18) Handicap parking signs need to be installed within the parking lot in lieu of the thermoplastic epoxy.

PROVISIONS AND SPECIFICATIONS

INCLUSIONS:

City of Colorado Springs – City Engineering Division Standard Specifications

City Of Colorado Springs - Parks, Recreation, and Cultural Services Standard Specifications

- 2230 SITE CLEARING (REVISED 2013)
- 2231 TREE PROTECTION AND PRUNING(REVISED 2013)
- 2300 EARTHWORK (REVISED 2013)
- 2751 CEMENT CONCRETE PAVEMENT (REVISED 2013)
- 2920 SEEDING AND SODDING (REVISED 2013)

All other agencies having jurisdiction over the project

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**BID FORM
SIGNATURE PAGE**

By signing in this space, the contractor hereby certifies that this company is not presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from bidding/proposing on any federal, state, county or municipal Invitations for Bids or Requests for Proposals.

Signature

Date

Title

THE CONTRACTOR hereby Certifies that at the time of this certification, the Contractor does not knowingly employ or contract with an illegal alien and that the contractor has participated or attempted to participate in the basic pilot program in order to verify that the Contractor does not employ any illegal aliens. "Basic pilot program" means the basic pilot employment verification program created in Public Law 208, 104th Congress, as amended, and expanded in Public Law 156, 108th Congress, as amended, that is administered by the United States department of homeland security.

If awarded the contract, the undersigned hereby agrees to sign said Contract, and furnish the necessary bonds within ten (10) days of receipt of the "Notice of Award", of said contract, and to begin work within ten (10) days from the date of receipt of the "Notice to Proceed" and to complete the work within FORTY FIVE (45) calendar days.

The undersigned acknowledges and understands the terms, conditions, Specifications and all Requirements contained and/or referenced and are legally authorized by the bidder to make the above bid statements or representations.

(Name of Company)

(Signature)

(Date)

(Address)

(City, State and Zip)

(Telephone Number)

(Name typed/Printed)

(Title)

(email address)

FEDERAL TAX ID # _____

This Company Is: Corporation___ Individual___ Partnership___ LLC___

Offeror hereby acknowledges receipt of the following amendments, if applicable (Offeror agrees that it is bound by all Amendments identified herein)

AMENDMENT #1 _____ DATED: _____

AMENDMENT #2 _____ DATED: _____

AMENDMENT #3 _____ DATED: _____

SCHEDULE B

INSTRUCTIONS TO BIDDERS

GENERAL INFORMATION

City Contracting no longer maintains a bidders' list. All projects subject to formal competition are posted on Rocky Mountain E Purchasing (www.rockymountainbidsystem.com) or in the lobby of our office at 30 S. Nevada Ave., Ste 201, Colorado Springs, CO 80903.

The City of Colorado Springs Contracting now utilizes **Rocky Mountain E Purchasing** which can be accessed [here](#). This system will provide you with convenient access to all bid information for the City of Colorado Springs as well as 106 other local agencies throughout Colorado. To receive email alerts of open bids in your field please register with Rocky Mountain E Purchasing System and complete your online registration. All vendors are encouraged to register in order to access RFP's, IFB's, addenda, and awards.

NONREFUNDABLE FEE FOR THIS SOLICITATION IS \$ NO FEE

B.1 BID ISSUE DATE

Invitation for Bid (IFB) Number B16-022NS Ute Valley Park Trailhead at Ute Valley Park is being issued and posted on the website on February 2, 2016.

B.2 SUBMISSION OF BIDS

B.2.1 Bids are to be submitted in a sealed envelope to City Contracting Office, 30 S. Nevada Ave., Suite 201, Colorado Springs CO. 80903.

B.2.2 Date/Time: Bids shall be received on or before: **2:00 P.M., March 2, 2016.**

B.2.3 Non-refundable Fee for Bidding Documents: \$N/A. Documents can be downloaded from web-site www.rockymountainbidsystem.com at no charge.

B.2.4 Bid Bond is required if total bid exceeds \$100,000.00. (Also see B.12 and B.22)

*******LATE BIDS WILL NOT BE ACCEPTED*******

B.3 PRE-BID CONFERENCE

B.3.1 A pre-bid conference will not be held for this bid.

B.4 LATE BIDS/LATE MODIFICATIONS OF BIDS

B.4.1 Bids received in the office designated in B.2 above, after the exact time set for opening are considered "late bids", and will not be accepted by the Bid Opening Official. Bidders are solely responsible for insuring their bids arrive on time and to the place of bids specified in the Invitation for Bid.

B.4.2 The City of Colorado Springs will not consider a late bid or late modification of bid unless:
(1) There is conclusive evidence that the bid was submitted to the office designated in B.2 above, on time and was mishandled by the City of Colorado Springs (i.e. lost or misplaced) City Contracting personnel responsible for handling/receiving bids. Mishandling by other units or offices of the City of Colorado Springs does not constitute City Contracting personnel.
(2) Or – it was the only bid received.

B.5 MISTAKES IN BIDS - CONFIRMATION OF BID

When it appears from a review of the bid that a mistake has been made, the bidder may be requested to confirm their bid. Situations in which the confirmation may be requested include obvious, apparent errors on the face of the bid or a bid unreasonably lower than the other bids submitted. All mistakes in bids will be handled in accordance with the City of Colorado Springs Procurement Rules and Regulations.

B.6 PROCUREMENT RULES AND REGULATIONS

All formal Invitation for Bids (IFB) advertised by the City of Colorado Springs is solicited in accordance with the City's Procurement Rules and Regulations. The City's Procurement Rules and Regulations can be reviewed and/or downloaded from the City Contracting web-site www.coloradosprings.gov/contracting. Any discrepancies or conflicting statements, decisions regarding bidding irregularities, clauses or specifications will be rectified utilizing the City's Procurement Rules and Regulations. It is the bidder's responsibility to advise the Contracting Specialist listed in these bidding documents of any potential discrepancies, conflicting statements, clauses or specifications prior to the bid opening date and time.

B.7 MINOR INFORMALITIES/IRREGULARITIES IN BIDS

B.7.1 A minor informality or irregularity is one that is merely a matter of form and not of substance. It also pertains to some immaterial defect in a bid or variation of a bid from the exact requirements of the invitation that can be corrected or waived without being prejudicial to other bidders. The defect or variation is considered immaterial when the effect on price, quantity, quality, or delivery is negligible when contrasted with the total cost or scope of the services being acquired.

B.7.2 If the City Procurement Services determines that the bid submitted contains a minor informality or irregularity, then the Manager shall give the bidder an opportunity to cure any deficiency resulting from a minor informality or irregularity in a bid, or waive the deficiency, whichever is to the advantage of the City. In no event will the bidder be allowed to change the bid amount. Examples of minor informalities or irregularities include but are not limited to the following;

B.7.2.1 Bidder fails to sign the Bid, but only if the unsigned bid is accompanied by other material evidence, which indicates the bidder's intention to be bound by the unsigned bid. (such as Bid bond, or signed cover letter which references the bid # and amount of bid).

B.7.2.2 Bidder fails to acknowledge an Amendment - this may be considered a minor informality only if the Amendment, which was not acknowledged, involves only a matter of form or has either no effect or merely a negligible effect on price, quantity, quality, or delivery of the item or services bid upon.

B.8 REJECTION OF BIDS

Any bid that fails to conform to the essential requirements of the invitation for bids will be rejected.

B.8.1 Any bid that does not conform to the applicable specifications shall be rejected unless the invitation authorizes the submission of alternate bids and the items or services offered as alternates meet the requirements specified in the invitation for bids.

B.8.2 A bid shall be rejected when the bidder imposes conditions that would modify requirements of the invitation or limit the bidder's liability to the City, since to allow the bidder to impose such conditions would be prejudicial to other bidders. For example, bids shall be rejected in which the bidder:

B.8.2.1 Protects against future changes in conditions, such as increased costs, if total possible costs to the City cannot be determined.

B.8.2.2 Fails to state a price and indicates that price shall be "price in effect at time delivery".

B.8.2.3 States a price but qualifies it as being subject to "price in effect at time of delivery".

B.8.2.4 Takes exceptions to the invitation for bids terms and conditions.

B.8.2.5 Inserts the bidder's terms and conditions.

B.8.2.6 Limits the rights of the City under any contract/invitation for bid clause.

B.9 ESTIMATED QUANTITIES

If the Bid schedule herein contains estimated quantities this provision is applicable. The quantities listed for each of the items in the bid schedule are only estimated quantities. Contractors are

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required to bid a firm Unit cost for each item specified. The actual quantities ordered may fluctuate up or down. The unit prices proposed by each bidder will remain firm and will not be renegotiated if the estimated quantities are not met or are exceeded. This clause will take precedence over any/all other estimated quantity clauses that conflict with this clause.

For bidding purposes, if there is a conflict between the extended total of an item and the Unit Price, the Unit price shall prevail and be considered as the amount of the bid. All Unit prices shall include all necessary overhead and profit. Items not listed in the bid schedule such as overhead, profit, mobilization, de-mobilization, bonding, etc shall be distributed throughout the bidder's Unit Prices for the items listed in the bid schedule.

B.10 NUMBER OF COPIES

Bidder shall email one (1) copy of its bid, signed in ink, and, if applicable, one (1) original copy of the Bid Bond as defined in B.12 and B.22.

B.11 IDENTIFICATION OF BID

Bids must be returned in a sealed envelope; solicitation number and date for submission of offers must be clearly marked on the outside in the lower left hand corner:

Bid No. B16-022NS UTE VALLEY PARK TRAILHEAD AT UTE VALLEY PARK

Due Date & Time: March 2, 2016 - 2:00 P.M.

Company: _____

Any offer that is submitted without being properly marked may be opened for identification prior to the deadline for receipt of offers and then resealed.

B.12 BID BOND REQUIREMENTS

A bid bond in the amount of five (5) percent of the bid amount is required to be submitted with your bid when (1) the total amount of your accumulative bid is more than \$100,000 or (2) is required elsewhere in this solicitation. This Bond must meet the conditions specified under Bond Requirements B.22 and shall be submitted using the form in Section E of this solicitation, or by submitting a cashier's check or certified check.

B.13 SALES TAX

The contractor shall apply with the Colorado Department of Revenue for a tax-exempt certificate for this project. The certificate does not apply to City of Colorado Springs Sales and Use Tax (3.12%) which shall be applicable and included in your bid or proposal in all cases. The tax exempt project number and the exemption certificate only applies to County, PPRTA (Pikes Peak Rural Transportation Authority), and State taxes when purchasing construction and building materials **to be incorporated in this project.**

Furthermore, the exemption does not include or apply to the purchase or rental of equipment, supplies or materials that **do not become a part of the completed project or structure.** In these instances, the purchase or rental is subject to full taxation of 8.25% (City-3.12%, County-1.23%, PPRTA-1%, and State-2.9%).

The Contractor and all subcontractors shall include in their bid City of Colorado Springs Sales and Use Tax (3.12%) on the work covered by the Contract, and other taxes as applicable.

Note: For all equipment, materials and supplies incorporated into the work purchased from vendors or suppliers not licensed to collect City Sales Tax (i.e. out of state suppliers, etc.), City Use Tax (3.12%) is due and payable to the City. The contractor shall execute and deliver, and shall cause the Contractor's subcontractors to execute and deliver to the City Sales Tax Office, ST 16 forms listing all said equipment, materials and supplies and the corresponding use tax due, along with payment for said taxes unless already included in the bid price. Any outstanding taxes due may be withheld from the final payment due the contractor and may result in suspension from bidding on City projects.

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Forms and instructions can be downloaded at <https://coloradosprings.gov/cat/government/tax-information/sales-tax>. Questions can be directed to the City Sales Tax Division at (719) 385-5903.

Our Registration Numbers are as follows:

City of Colorado Springs

Federal I.D.: 84-6000573

Federal Excise: A-138557

State Sales Tax: 98-03479

B.14 PREPARATION OF BID OFFER

- B.14.1 Bidders are expected to examine the drawings, specifications, bid documents, proposed contract forms, terms and conditions, and all other instructions and solicitation documents. Bidders are expected to visit the job-site to determine all requirements and conditions that will affect the work. Failure to do so will not relieve a bidder from their responsibility to know what is contained in this invitation for bid, or site conditions affecting the work. In addition,
- B.14.2 The bidder certifies that it has checked all of its figures, and understands that the Owner will not be responsible for any errors or omissions on the part of the bidders in preparing its bid.
- B.14.3 All items, (unless the invitation specifically states otherwise) including any additive or deductive alternates on the bid schedule, **must** be completely filled out or the bid will be determined non-responsive and ineligible for consideration for award.
- B.14.4 The bidder declares that the person or persons signing this bid is/are authorized to sign on behalf of the firm listed and to fully bind the bidder to all the requirements of the solicitation.
- B.14.5 The bidder certifies that no person or firm other than the bidder or as otherwise indicated as any interest whatsoever in this bid/offer or the Contract that may be entered into as a result of this bid/offer and that in all respects the offer is legal and firm, submitted in good faith without collusion or fraud.
- B.14.6 By submitting a bid the bidder certifies that it has complied and will comply with all requirements of local, state, and federal laws, and that no legal requirements have been or will be violated in making or accepting this bid. Bidders are expected to review the City's Procurement Rules and Regulations (See B.6) which will be used when determining a bidder responsive and responsible and awarding contracts in the best interest of the City.
- B.14.7 If there is a discrepancy between the unit price and the total price, the unit price shall be used to determine the applicable total price. Bidders are responsible for including profit and overhead associated with the project when determining their unit prices.

B.15 BASIS OF AWARD

The City of Colorado Springs intends to award a contract resulting from this solicitation to the lowest, responsive, responsible bidder, whose offer conforming to the solicitation, will be most advantageous to and in the best interest of the City of Colorado Springs, cost or price and other factors considered.

- B.15.1 In addition to other factors, bid/offers will be evaluated on the basis of advantages and disadvantages to the City that might result from offers received.
- B.15.2 The City reserves the right to reject any or all proposals and to waive informalities and/or irregularities in the bid offer.
- B.15.3 Total bid will be evaluated and awarded as follows: It is the City's intent to award this bid based on the **TOTAL BASE BID.**

B.16 PERIOD OF ACCEPTANCE

The bidder agrees that its bid offer shall remain open for acceptance by the City for a period of sixty (60) calendar days from the date specified in the solicitation for receipt of bids.

B.17 CONTRACT AWARD

The signature of the bidder indicates that within ten (10) calendar days from acceptance of its bid offer it will execute a contract with the City of Colorado Springs and if indicated in this solicitation, furnish a project specific Certificate of Insurance naming the City of Colorado Springs as Additional Insured, furnish Performance, Labor and Materials, Payment and Maintenance Bonds and any other documents required by the Specifications or Contract Documents.

B.18 NOTICE TO PROCEED

Work may not start under any awarded contract until a written notice to proceed is issued by the City of Colorado Springs. The City of Colorado Springs may issue the Notice to Proceed anytime after the contract is signed and, if required, insurance and bonds have been provided in accordance with B.22 below.

B.19 AMENDMENTS TO THE SOLICITATION

Amendments are also referred to as addendum or addenda; and these terms shall be considered synonymous. It is the bidder's responsibility to contact the Contracting Specialist listed in B.21 below to confirm the number of Amendments which have been issued.

- B.19.1 If this solicitation is amended, then all specifications, terms and conditions, which are not amended, remain unchanged.
- B.19.2 Bidders shall acknowledge receipt of any amendment to this solicitation (1) by signing and returning the amendment, (2) by identifying the amendment number and date in the space provided for this purpose on the form for submitting a bid offers, or (3) by letter or facsimile.
- B.19.3 Acknowledged amendments must be received prior to bid opening. Bidders are encouraged to include signed addenda or initialed acknowledgment with returned bids.

B.20 EXPLANATIONS TO PROSPECTIVE OFFERORS

Any prospective bidder desiring an explanation or interpretation of the solicitation documents, drawings, specifications, etc., must request it in writing soon enough to allow a reply to reach all prospective offerors before the time for submission of offers. Oral explanations or instructions given before the opening of bids will not be binding. Any information provided to a prospective bidder during the bid preparation stage will be promptly furnished to all other prospective bidders as an amendment to the solicitation if that information is necessary in submitting bid offers or if the lack of it would be prejudicial to other prospective bidders. Also see the City's Procurement Rules and Regulations (See B.6).

B.21 QUESTIONS AND OTHER REQUESTS FOR INFORMATION

All questions shall be submitted in writing to the following specified individual. The preferred method of submitting written questions is via e-mail. All questions must be received prior to the cutoff date for questions which will be established at the pre-bid conference. Questions are due no later than **1:00 PM Tuesday, February 23, 2016.**

All questions shall be directed to:

Nicole Spindler nspindler@springsgov.com

B.22 BOND REQUIREMENTS

B.22.1 Bid (offer) Bond

- a) The Bidder is required to furnish with their bid a bid bond in the form of a certified check, cashier's check or surety bid bond acceptable to the Contracting Specialist in the sum equal to at least 5% of the total amount of the bid payable without condition to the City of Colorado Springs if; (1) the total amount of your accumulative bid is more than \$100,000 or (2) is required elsewhere in this solicitation.
- b) The Bid Bond shall guarantee that the bid will not be withdrawn or modified for a period of sixty calendar days after the time set for the receipt of bid offers, and if accepted within those sixty calendar days, that the person, firm or corporation submitting same shall within ten (10) calendar days after being notified of the

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acceptance of its bid offer, enter into a Contract and furnish the required bonds and all insurance certificates called for under this invitation for bid.

- c) The Bid Bonds of unsuccessful bidders will not be returned to the respective bidders unless a self addressed stamped envelope is provided along with a written request for bid bond return. However, if a certified check or a cashier's check is submitted in lieu of the Bid Bond, it will be returned as soon as possible after the lowest responsive and responsible bidder is determined and a contract is executed.
- d) In the event the bidder whose bid offer is accepted fails to enter into the contract and/or furnish the proper bonds, its certified check, cashier's check or surety bid bond will be forfeited in full to the City.

B.22.2 Performance, Labor and Materials Payment, and Maintenance Bonds

The Contractor shall furnish to the City of Colorado Springs one copy of each; Performance Bond, Labor and Materials Payment Bond, and a Maintenance Bond in the amount of 100% of the total contract within ten (10) calendar days after notification of award of a contract. The cost of all bonds shall be included in Contractor's bid offer.

B.22.2.1 Bonds shall:

- a) Be for the full amount of the contract price.
- b) Guarantee the Contractor's faithful performance of the work under this contract, and the prompt and full payment for all labor and materials involved therein.
- c) Guarantee protection to the City of Colorado Springs against liens of any kind.
- d) Be, when a surety bond is furnished, from a surety company operating lawfully in the state of Colorado and shall be accompanied with an acceptable "Power-of-Attorney" form attached to each bond copy.
- e) Be issued from a surety company that is acceptable to the City of Colorado Springs.
- f) Be submitted using the forms in the Exhibit section of this solicitation.

B.23 SPECIFICATIONS AND DRAWINGS

B.23.1 No Fee solicitations: All interested bidders may obtain one copy of the Project Specifications and a set of the project drawings for use in preparing your bids. If the bidder requires additional sets, it is their responsibility to duplicate at their own expense additional copies.

B.23.2 Fee solicitations: All interested bidders may purchase up to three copies of the Project Specifications and project drawings for use in preparing your bids. If the bidder requires additional sets, it is their responsibility to duplicate at their own expense.

B.23.3 Upon award of the contract, the City will be responsible for furnishing the selected contractor a minimum of three (3) sets of both the specifications and drawings. The City will also provide any returned sets that may be available. However, in no event shall the City be required to pay for the reproduction of more than 3 sets of each.

B.23.4 Specifications are included in this solicitation.

B.24 TYPE OF CONTRACT

It is the intent of this Invitation for Bids (IFB) to award a firm fixed unit price Contract based on the prices offered by the lowest responsive and responsible bidder. Contract prices shall remain firm and fixed throughout the contract performance period.

B.25 F.O.B. DESTINATION

Unless otherwise specified in the invitation for bid, all goods, materials, supplies, equipment or services covered by this solicitation shall be delivered F.O.B. destination, all freight charges prepaid and allowed, within the city limits of the City of Colorado Springs, Colorado, at the location indicated in the awarded contract or purchase order.

B.26 BID RESULTS

The City of Colorado Springs does not mail bid results or tabulations. However, bid tabulations are posted and can be downloaded from Rocky Mountain E Purchasing System (www.rockymountainbidsystem.com).

Bid tabulations will also be faxed upon request. To request bid tabulation, email contracting@springsgov.com.

B.27 TERMS, CONDITIONS AND SPECIAL PROVISIONS

Bidders are advised to pay special attention to Schedules C, Terms and Conditions, and Schedule D, Special Provisions. These schedules may contain requirements that will have an impact on all potential bidders, such as Liquidated Damages, Indemnification, DBE participation, type of contract, and delivery schedule.

B.28 APPROPRIATION OF FUNDS

B.28.1 In the event funds are not appropriated in whole or in part sufficient for performance of the City's obligations under this solicitation or appropriated funds may not be expended due the City Charter spending limitations, then the City may terminate this solicitation or award of this solicitation without compensation to bidders.

B.28.2 In accordance with the City Charter, performance of the City's obligations under any resultant Agreement or Contract is expressly subject to appropriations of funds by the City Council or receipt of Federal Grant Funds, and the City may terminate that Agreement or Contract without compensation to the Contractor.

B.29 EQUAL EMPLOYMENT OPPORTUNITY

B.29.1 In connection with this procurement, the contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, age, marital status or disability. The contractor will take affirmative action to ensure that all applicants are employed and that employees are treated during employment without regard to their race, color, religion, sex, national origin, age, marital status or disability. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.

- a) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor; state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, age, or national origin.
- b) The Contractor will comply with all equal employment opportunity provisions, rules, regulations and executive orders issued by the City of Colorado Springs, State of Colorado and the Secretary of Labor.
- c) The Contractor will furnish all information and reports required by any equal employment opportunity provisions, rules, regulations and executive orders and will permit access to its books, records, and accounts for purposes of investigation to ascertain compliance with such Rules, Regulations, and Orders.
- d) In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of such Rules, Regulations, or Orders, this contract may be canceled, terminated or suspended in whole or in part and the Contractor may be declared ineligible for further City contracts.

B.30 PERIOD OF PERFORMANCE

The contractor shall complete all work within **45 Calendar Days** after the Notice-to-Proceed as per the Specifications and Drawings. The contractor will start work promptly after receipt of the Notice-to-Proceed and continue to work diligently until all work is completed and accepted by the City.

B.31 EMPLOYMENT OF ILLEGAL ALIENS

- a. The Contractor represents, warrants, and agrees that it (i) has verified that it does not employ any illegal aliens, or (ii) has attempted to verify through participation in the Department of Homeland Security's Basic Pilot Program that the contractor does not employ any illegal aliens. If the contractor has not been accepted into the Basic Pilot Program prior to entering into this Agreement, the Contractor shall apply to participate in the Basic Pilot Program (unless it has been discontinued) every three months after entering this Agreement until the Contractor either is accepted or this Agreement has been completed, whichever is earlier.
- b. Notwithstanding subparagraph (a) of this section of the Agreement, the Contractor shall not use or rely upon the Basic Pilot Program procedure for the purpose of pre-employment screening of job applicants during the performance of the obligations contained in this Agreement.
- c. If at any time prior to or during the performance of the Contractor's obligations contained in this Agreement, the Contractor obtains actual knowledge that a subcontractor performing work under this Agreement for the Contractor knowingly employs or contracts with an illegal alien, the Contractor is required to (i) notify in writing both the subcontractor and the City within three (3) days after obtaining such knowledge that the Contractor has actual knowledge that the subcontractor is employing or contracting with an illegal alien, and (ii) terminate the subcontract with the subcontractor if, within the three (3) days following receipt of such notice, the subcontractor does not stop employing or contracting with the illegal alien. The Contractor shall not terminate the contract with the subcontractor if, during the three (3) day period after actual knowledge of employment or contract with the illegal alien, the subcontractor provides information to the Contractor to establish that the subcontractor has not knowingly employed or contracted with an illegal alien. For purposes of this subparagraph only, and without waiving or changing any other Notice Provisions in this Agreement, all notices to the City regarding this subparagraph shall be addressed to the City Contracting Manager, 30 South Nevada Ave., Suite 201, Colorado Springs, CO 80903, with a copy to the Office of the City Attorney, P O Box 1575, Colorado Springs, Colorado 80901-1575.

The Contractor will comply with all reasonable requests made in the course of an investigation under CRS 8-17.5-102 by the Colorado Department of Labor and Employment

B.32 FORCE MAJEURE

In the event of either party being rendered unable wholly, or in part, by force majeure to carry out its obligations under this Agreement, then on such party's giving notice and full particulars of such force majeure in writing to the other party as soon as possible after the occurrence of the cause relied on, the obligation of the party giving such notice, so far as it is affected by force majeure, shall be suspended during the continuance of any inability so caused, but for no longer period, and such cause shall, as far as possible, be remedied with all reasonable dispatch. The term "force majeure" as employed herein shall mean acts of the public enemies, wars, blockages, insurrections, landslides, earthquakes, fires, and floods

B.33 BID DOCUMENTS

B.33.1 The following listed documents must be emailed with your bid in order for your bid submittal to be considered responsive. Use this list as a checklist to make sure all required documents are submitted.

- Schedule A, Bid Form**
- Exhibit 1 Bid Bond if applicable (see B.22)**
- Exhibit 6 Minimum Insurance Requirements Form**
- Acknowledged Addendums if issued**

SCHEDULE C

TERMS & CONDITIONS

C.1. CONFIDENTIAL MATTERS

All data and information gathered by the Contractor and its subcontractors, and all reports, recommendations, drawings, documents, and data shall be treated by the Contractor and its subcontractors as confidential. The Contractor and its subcontractors must agree not to communicate and disclose the aforesaid matters to a third party or use them in advertising, publicity, or propaganda and/or in another job or jobs, unless prior written consent is obtained from the City.

C.2. LAW

This contract is subject to and shall be interpreted under the law of the State of Colorado, and the charter, City Code, Ordinances, Rules and Regulations of the City of Colorado Springs, a home rule city. Court venue and jurisdiction shall exclusively be in the Colorado District Court of El Paso County Colorado. The contractor shall insure that the contractor and the contractor's employees, agents and officers are familiar with, and comply with, applicable Federal, State and Local laws and Regulations as now written or hereafter amended.

C.3 INDEMNIFICATION

Contractor agrees that Contractor shall indemnify, defend and hold harmless the City, its officers, employees and agents, from and against any and all loss, damage, injuries, claims, cause or causes of action, or any liability whatsoever resulting from, or arising out of, or in connection with the Contractor's performance under this Agreement.

C.4 ASSIGNMENT

Contractor shall not assign or otherwise transfer this Agreement or any right or obligation hereunder without the prior written consent of the City.

C.5 LAW

This Agreement is subject to and shall be interpreted under the law of the State of Colorado, and the Charter, City Code, Ordinances, Rules, and Regulations of the City of Colorado Springs, Colorado, a Colorado Home Rule City. Court jurisdiction shall exclusively be in the District Court for El Paso County. Contractor shall insure that Contractor is familiar with, and complies with, applicable Federal, State, and local laws and regulations as now written or hereafter amended.

C.6 INTEGRATION

This is a completely integrated contract and contains the entire Agreement between the parties. Prior written or oral agreements if any shall be deemed of no effect and shall not be binding upon either party.

SCHEDULE D

ARTICLE I. GENERAL PROVISIONS

All bids submitted as a result of City of Colorado Springs Invitations for Bids (IFB) and/or Request for Proposals (RFP) shall be in accordance with the latest version of the City's Procurement Rules, Regulations and Information. The latest version is posted on the City's web-site at www.coloradosprings.gov or accessed [here](#), and can be reviewed or downloaded.

SECTION 100 DEFINITIONS AND TERMS

Also see Procurement Rules 1-103 Terms Defined

Titles used in these specifications having a masculine gender, such as "workmen" and the pronouns "he" or "his", are for the sake of brevity and are intended to refer to persons of either sex.

The titles or headings of the sections and subsections herein are intended for convenience of reference and shall not have any bearing on their interpretation.

When the Contract indicates that something "shall" be done, the action is required and is not discretionary.

Calendar Day	Each and every day shown on the calendar, beginning and ending at midnight.
Change Order	A written order issued to the Contractor by the City covering contingencies, extra work, increases or decreases in contract quantities, and additions or alterations to the plans or specifications, within the scope of the Contract, and establishing the basis of payment and time adjustments for the work affected by the changes. The Change Order is the only method authorized for changing the Contract.
City	City of Colorado Springs, Colorado.
Contract Documents	Contract Documents include the Advertisement for Bids, Instructions to Bidders, Bid Form or Bid Proposal, Addenda, the signed Agreement, surety bonds, insurance documents, the General and Special Provisions, the Plans, the Specifications, including all modifications thereof incorporated in any of the documents before execution of the agreement.
Contract	The executed written agreement between the City and the Contractor setting forth the obligations of the parties for the performance of the work and the basis of payment. The Contract includes the Contract Documents, Notice to Proceed, and executed Change Orders, all of which constitute one instrument.
Contractor	The person, persons, firm, or corporation to whom a contract is awarded by the City and who is subject to the terms of said contract. Contractor shall include the agents, employees, workmen, subcontractors and any assignees of said contract.

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Due Date and Time	The scheduled date and time for the receipt of bids, and opening thereof.
Engineer	The City Engineer of Colorado Springs or, their designated representative.
Notice	<p>Any written notice served pursuant to the terms of the contract. Notice shall be deemed to have been duly served if delivered in person or by registered mail to:</p> <p>Pre-award The Contracting Specialist listed in the Invitation for Bid, City of Colorado Springs, Procurement and Contracts, 30 South Nevada Ave., Room 201, Colorado Springs, CO 80903.</p> <p>Post award The Project Manager listed in the Invitation for Bid, City of Colorado Springs, City Engineering, 30 South Nevada Ave., Room 403, Colorado Springs, CO 80903.</p> <p>Notice to the Contractor will be to the Chief representative of the Contractor at the site of the project in person; or by registered mail to the place stated in the papers prepared by the Contractor to accompany their proposal as the address of their permanent place of business; or as to the Surety on the performance bond by registered mail to the Surety at the home office of such surety.</p>
Plans	The drawings, or reproductions, provided by the City which show the location, character, dimensions, and details of the work to be done.
Project Engineer/Manager	The individual representing the City responsible for managing and oversight of the Contract.
Project	The entire improvement proposed by the City to be constructed in whole or in part pursuant to the Contract.
Proposal Form or Bid Proposal	The contract document prepared by the City upon which the bidder shall submit their bid.
Subcontractor	A person, firm, or corporation, other than the Contractor, supplying labor or materials, or both, or equipment furnished at the site of the project under an Agreement with the Contractor.
Surety	The person, firm, or corporation that has executed as surety the Contractor's Bid, Performance, Payment and Maintenance Bonds.

SECTION 101 PROSPECTIVE BIDDERS

101.00 PROCUREMENT RULES AND REGULATIONS

All formal Invitation for Bids (IFB) and/or Request for Proposals (RFP) advertised by the City of Colorado Springs are solicited in accordance with the City's Procurement Rules and Regulations. The City's Procurement Rules and Regulations can be reviewed and/or downloaded from the City Contracts web-site www.coloradosprings.gov/contracting.

The bidder shall follow the prequalification and bidding procedures contained in the City's Procurement Rules and Regulations.

101.01 ADVERTISEMENT FOR BIDS

All bids estimated to exceed \$199,999.00 will be formally advertised under normal conditions. Formal bids will be advertised and posted on Rocky Mountain E Purchasing which can be accessed here: www.rockymountainbidsystem.com.

101.02 INVITATION FOR BIDS - CONTENT

The Invitation for Bids shall include the following: (a) Instructions and information to bidders concerning the bid submission requirements, including the time and closing date, the address of the office to which bids are to be delivered; (b) The project description, basis of award, delivery or performance schedule and inspection and acceptance requirements; (c) The contract terms and conditions, including warranty and bonding or security requirements as applicable.

Project specific requirements, terms and conditions, etc. for each solicitation will reflect the contractual requirements for that particular Invitation for Bid or Request for Proposal. These types of requirements will be specified in Instructions to Bidders, Terms and Conditions, General Provisions, and Specifications.

101.03 INTERPRETATION OF QUANTITIES IN PROPOSAL FORM

Except as otherwise provided in this subsection and the method of measurement for individual items, the quantities appearing in the proposal form are estimates prepared for the comparison of proposals. Payment to the Contractor will be made in accordance with the following procedures:

- (a) Measurement required. When the Contract requires measurement of work performed or material furnished, payment will be made for actual quantities measured and accepted.
- (b) Measurement Not Required. When the Contract does not require quantities of work performed or materials furnished to be measured, payment will be made for the quantities appearing in the Contract.

The estimated quantities of work to be performed and materials to be furnished may be increased, decreased or omitted.

101.04 INTERPRETATION OF PLANS AND SPECIFICATIONS

Any change to proposal forms, plans, or specifications prior to the opening of proposals will be issued by the City to all holders of proposal forms. Certain individuals are named in the project specifications that have authority to provide information, clarification or interpretation to bidders prior to opening of proposals. Information obtained from persons other than those named individuals is invalid and shall not be used for bidding purposes.

101.05 EXAMINATION OF PLANS, SPECIFICATIONS, SPECIAL PROVISIONS, AND SITE OF WORK.

The bidder is expected to examine the site of the proposed work, the proposal, plans, specifications, supplemental specifications, special provisions, and contract forms, before submitting a proposal. The submission of a proposal will be considered conclusive evidence that

the bidder has made this examination and is aware of the conditions to be encountered in performing the work according to the Contract.

Boring logs and other records of subsurface investigations, if they exist, are available for inspection by bidders. These logs and records are made available so that all bidders have access to identical subsurface information that is available to the City, and is not intended as a substitute for personal investigation, interpretation and judgment of the bidders.

The City does not warrant the adequacy of boring logs and other records of subsurface investigations, and such information is not considered to be a part of the Contract. When a log of test borings is included in the subsurface investigation record, the data shown in the individual log of each test boring apply only to that particular boring and are not intended to be conclusive as to the character of any material between or around test borings. If bidders use this information in preparing a proposal, it is used at their own risk, and bidders are responsible for all conclusions, deductions, and inferences drawn from such information.

Bidders may conduct subsurface investigations at the project site at bidder's expense; the City will afford them this opportunity prior to public opening of proposals.

If a bidder discovers an apparent error or omission in the proposal form, estimated quantities, plan, or specifications, the bidder shall immediately notify the Contracting Specialist to enable the City to make any necessary revisions. The City may consider it to be detrimental to the City for a bidder to submit an obviously unbalanced unit bid price.

101.06 COMBINATION OR CONDITIONAL PROPOSALS

If proposal forms are issued for projects in combination and separately, the bidder may submit proposals either on the combination or on separate units of the combination. The City reserves the right to make awards on combination or separate proposals to the advantage of the City. Combination proposals will be considered, only when specified.

101.07 ANTI-COLLUSION AFFIDAVIT

The bidder/offeror by signing their proposal (bid) submitted to the City is certifying that the bidder has not participated in any collusion or taken any action in restraint of free competitive bidding. This statement may also be in the form of an affidavit provided by the City and signed by the bidder. The original of the signed anti-collusion affidavit shall be submitted with the proposal. The proposal will be rejected if it does not contain the completed anti-collusion affidavit.

101.08 MATERIAL GUARANTY

The successful bidder may be required to furnish a complete statement of the origin, composition, and manufacture of materials used in the construction of the work together with samples, which will be tested for conformance with Contract requirements.

101.09 EQUAL OPPORTUNITY

The City Contracts Office shall be responsible for ensuring the procurement of products, commodities, and services are in a manner that affords all responsible businesses a fair and equal opportunity to compete.

SECTION 102 CONTRACT DOCUMENT INTERPRETATION

102.00 INTENT OF CONTRACT DOCUMENTS

The sections of the contract documents are complementary, and what is called for by any one shall be as binding as if called for by all. The intent of the Contract Documents is to include the cost of all labor and materials, water, fuel, tools, plant, equipment, light, transportation, and all other expenses as may be necessary for the proper execution of the work. If the Contract

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Documents should be contradictory in any part, the order of precedence shall be as described in subsection 102.03.

Any work shown on the Plans and not covered in the Specifications, or included in the Specifications and not shown on the Plans, shall be executed by the Contractor as though shown both on the Plans and included in the Specifications.

If the Contractor, in the course of the work, finds any discrepancy between the Plans and the physical layout, or any errors or omissions in Plans or layout, he shall immediately so inform the Engineer and the Engineer shall promptly verify them. Any work done after such discovery without written consent of the Engineer authorizing the same shall be done at the Contractor's risk.

Any incidental and/or appurtenant items not specifically called for in the Plans and Specifications, but which are necessary to complete the work in accordance with the requirements of good practice, as determined by the Engineer, shall be included as a part of the Contractor's bid price and furnished at no additional cost to the Owner.

In interpreting the Contract Documents, words describing materials or work which have a well known technical or trade meaning, unless otherwise specifically defined in the contract documents, shall be constructed in accordance with such well known meaning recognized by architects, engineers, and the trade.

102.01 SPECIAL PROVISIONS, SPECIAL SPECIFICATIONS

Special Provisions or Special Specifications may be written to expand upon, modify or cancel these general provisions or the standard specifications.

102.02 ORDER OF PRECEDENCE

Any inconsistency in this solicitation or Contract shall be resolved by giving precedence in the following order:

- (a) Terms and Conditions
- (b) Proposal Requirements
- (c) Contract Form
- (d) Provisions
 1. Special Provisions
 2. General Provisions
- (e) Plans
 1. Detailed Plans
 2. Standard DrawingsCalculated dimensions will govern over scaled dimensions.
- (f) Special Specifications
- (g) Standard Specifications

102.03 STANDARD MANUFACTURER

Wherever the terms "standard", "recognized" or "reputable" manufacturers are used, they shall be construed as meaning manufacturers who have been engaged in the business of fabricating materials, equipment, or supplies of the nature called for by the Specifications for a reasonable period of time prior to the date set for opening of bids, and who can demonstrate to the satisfaction of the City that said manufacturer has successfully installed equipment, materials, or supplies of the type proposed to be furnished in at least three instances and that the performance of such materials, equipment, or supplies for a period of over twelve months prior to the date fixed for opening bids shall, prima facie, be deemed to have been engaged in such business for a reasonable length of time.

102.04 "OR EQUAL" CLAUSE

Whenever in any section of the contract documents, any article, material, or equipment is defined by describing a proprietary product, or by using the name of manufacturer or vendor, the term "or equal" if not inserted, shall not be construed in such a manner as to exclude manufacturers' products of comparable quality, design, and efficiency, subject to review and approval by the Engineer. The Engineer may require that proposed equals be submitted for review and approval.

102.05 TIME OF ESSENCE

In as much as the Contract concerns a needed improvement, the provisions of the Contract relating to the time of performance and completion of work are of the essence of this Contract. The Contractor shall begin work on the day specified in the Notice to Proceed and shall prosecute the work diligently so as to assure completion of the work within the number of calendar days or date specified, or the date to which the time for completion may have been extended.

102.06 PARTIAL WAIVER OR WAIVER BY ACQUIESCENCE

Partial waiver or waiver by acquiescence of any of the general or special provisions of this contract shall not constitute waiver of any of the other provisions contained in the Contract Documents.

SECTION 103 COMPLIANCE WITH LAWS

103.00 LAWS AND REGULATIONS

This contract is subject to and shall be interpreted under the laws of the State of Colorado, and the Charter, City Code, Ordinances, Rules and Regulations of the City of Colorado Springs, Colorado, a Colorado Home Rule City. Court Jurisdiction shall exclusively be in the District Court for El Paso County. The Contractor shall insure that the Contractor and the Contractor's employees, agents, and officers are familiar with, and comply with, applicable Federal, State, and Local laws and regulations as now written or hereafter amended.

103.01 PUBLIC IMPROVEMENT ASSESSMENT

If the cost of the improvement to be constructed under the contract is to be assessed upon the owners of land benefited by such improvement, upon complaint of any such landowner that the improvement is not being constructed in accordance with the contract, the City Council may consider the complaint and make such order in the premises as shall be just to ensure compliance with the contract.

103.02 ALL LEGAL PROVISIONS INCLUDED

It is the intention and agreement of the parties to this contract that all legal provisions of law required to be inserted, shall be and are inserted. However, if by mistake or otherwise, some such provision is not inserted, or is not inserted in proper form, then upon application of either party, the contract shall be amended so as to strictly comply with the law and without prejudice to the rights of either party.

103.03 SEVERABILITY

If any provisions of this contract shall be held unconstitutional, illegal, or void, such finding shall not affect any other provisions of this contract.

103.04 FOREIGN ENTITY

All bidders/offerors shall comply with State Statute 7-90-801, Authority to transact business or conduct activities required, and 7-90-802 Consequences of transacting business or conducting activities without authority.

103.05 LICENSES AND PERMITS

It shall be the responsibility of the successful bidder to obtain, at his expense, all necessary licenses and permits to do the project, in accordance with applicable Federal, State and local laws, regulations and ordinances. Typical permits and fees include, but are not limited to, Excavation/Boring Permits, Concrete Construction Permits, Fugitive Dust Permits, Regional Building Permits, Pavement Degradation fees, as well as Traffic Control and Barricade Plans to be approved by the City Traffic Division for all work within public rights-of-way and easements i.e. (curb and gutter, sidewalks, pedestrian ramps and cross pans).

103.06 EMPLOYMENT OF ILLEGAL ALIENS

Illegal Aliens - Public Contracts for Services - Compliance with Title 8, Article 17.5, Colorado Revised Statutes:

The Contractor acknowledges, understands, agrees, and certifies that: In the performance of any work or the provision of any services by the Contractor under this Contract, the Contractor shall not knowingly employ or contract with an illegal alien to perform work under this contract; or Enter into a contract with any subcontractor that fails to certify to the contractor that the subcontractor shall not knowingly employ or contract with an illegal alien to perform work under this Contract or under the subcontract to this contract. In The Contractor certifies in accord with Section 8-17.5-102(1) C.R.S. that, on the date the Contractor signs this contract, the Contractor does not knowingly employ or contract with an illegal alien who will perform work under this contract and that the Contractor shall participate in the e-verify program or Colorado Department of Labor and Employment program in order to confirm the employment eligibility of all employees who are newly hired for employment or to perform work under this contract. The contractor is expressly prohibited from using basic pilot program procedures to undertake pre-employment screening of job applicants while this Contract and any services under this Contract is being performed. If the contractor obtains actual knowledge that a subcontractor performing work under the public contract for services knowingly employs or contracts with an illegal alien, the Contractor shall notify the subcontractor and the City within three days that the contractor has actual knowledge that the subcontractor is employing or contracting with an illegal alien, and terminate the subcontract with the subcontractor if within three days of receiving the notice the subcontractor does not stop employing or contracting with the illegal alien; except that the contractor shall not terminate the contract with the subcontractor if during the three days the subcontractor provides information to establish that the subcontractor has not knowingly employed or contracted with an illegal alien. The Contractor shall comply with any request by the City, federal government, or the Colorado Department of Labor and Employment made in the course of an investigation that the department, pursuant to the authority established in Section 8-17.5-102 C.R.S., or a City or federal investigation. If the contractor violates or fails to comply with any provision of C.R.S. 8-17-101 et seq, the City may terminate this Contract for breach of contract. If this contract is so terminated, the Contractor shall be liable for any actual and consequential damages to the City.

SECTION 104 AWARD AND EXECUTION OF CONTRACT

104.00 AWARD

The contract shall be awarded to the lowest responsive and responsible bidder in the best interests of the City as specified in the Instructions to Bidders of the Invitation for Bids or Request for Proposals.

104.01 CONTRACT EXECUTED

A single original contract to include the Contractor's Performance, Labor and Material Payment and Maintenance Bonds will be executed and maintained in the official contract file located in the City Contracts office. The original copy of the contract maintained in the City Contracting file shall

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take precedence for purposes of interpretation or determining what the contract says. After all required signatures are obtained; photocopy counterparts (copies) will be made and distributed to:

- (a) Contractor
- (b) Project Manager/Engineer
- (c) City Finance Department
- (d) Inspector

Each Bond shall have an original Power of Attorney attached. The successful bidder shall provide compensation insurance and public liability and property damage insurance as outlined in the contract. The costs of executing the bonds, contract and insurance, including all notaries fees and expense, are to be paid by the Contractor to whom the contract is awarded.

104.02 VERBAL AGREEMENTS

No verbal agreements or conversations with any agent or employee of the City either before or after execution of the Contract shall affect or modify any of the terms or obligations contained in any of the documents comprising the Contract.

104.03 CONTRACT SECURITY

The Contractor shall furnish good and sufficient Performance, Labor and Material Payment and Maintenance Bonds on the form attached hereto in an amount not less than the full amount of the contract price as security for the faithful performance of the contract, for the payment of all persons performing labor and furnishing material in connection with the work, and for all guarantees of materials and workmanship required in the Contract. If at any time during the continuance of the contract a surety on the Contractor's bond or bonds becomes irresponsible, the City shall have the right to require additional and sufficient sureties which the Contractor shall furnish within ten (10) days after written notice to do so. Any additional surety bonds shall cover the entire original contract amount and any increases thereto.

104.04 BOND FORMS

Bonds shall be furnished on forms prepared by the City. Copies of the City's Bond Forms will be included in the Exhibits Section of the Invitation for Bids.

104.05 INDEPENDENT CONTRACTOR

In the performance of the Contractor's obligations under this contract, it is understood, acknowledged and agreed between the parties that the Contractor is at all times acting and performing as an Independent Contractor, and the City shall neither have nor exercise any control or direction over the manner and means by which the Contractor performs the Contractor's obligations under this contract, except as otherwise stated within the contract terms. The Contractor understands and agrees that the contractor and the contractor's employees, agents, servants, or other personnel are not City employees. The Contractor shall be solely responsible for payment of salaries, wages, payroll taxes, unemployment benefits or any other form of compensation or benefit to the Contractor or any of the Contractor's employees, agents, servants or other personnel performing services or work under this contract, whether it be of a direct or indirect nature. Further in that regard, it is expressly understood and agreed that for such purposes neither the Contractor nor the Contractor's employees, agents, servants or other personnel shall be entitled to any City payroll, insurance, unemployment, worker's compensation, retirement or any other benefits whatsoever.

SECTION 105 THE CONTRACT: FOLLOWING EXECUTION

105.00 MATERIALS

Unless otherwise stipulated in the contract, the Contractor shall provide and pay for all materials, labor, water, tools, equipment, light power, transportation, and other facilities necessary for the

execution and completion of the work. The Contractor shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

105.01 SCHEDULE

The Contractor shall be responsible for planning, scheduling, and reporting the progress of the work to ensure timely completion of the work as called for in the Contract Documents. The Contractor shall prepare a Project Schedule that shall be used for coordination, for evaluation of progress, and for the evaluation of changes to the Contract. The Schedule shall include all activities, including those of subcontractors, Contractor's engineers and surveyors, and suppliers. Seasonal and weather constraints, utility coordination, railroad restrictions, right of way restrictions, traffic constraints, environmental constraints, other project interfaces, expected job learning curves and other constraints shall be considered when preparing the Project Schedule, including any phasing or sequencing of the work specified in the Contract Documents. Days scheduled as no work days shall be indicated. The Schedule shall consist of a Methods Statement as defined in part A. below and a progress schedule consisting of (1) a Critical Path Method (CPM) schedule as defined in part B. below, or (2) a Bar Chart schedule as defined in part C. below. A CPM Schedule shall be required if the contract exceeds \$250,000 or if the construction period exceeds 150 calendar days, unless the Contract Documents stipulate otherwise. The CPM Schedule shall utilize Primavera's Suretrak Project Manager software or be capable of being read and manipulated by Suretrak Project Manager software. The Schedule shall show all work completed within the contract time.

The Contractor shall submit two copies of all required schedule information as described below. Schedules, schedule updates, diagrams and reports using CPM shall also be submitted electronically in the appropriate software format. All schedules, diagrams, and reports shall include a title, project number, date of preparation, and the name of the Contractor.

The Bar Chart or Critical Path Method 90-day schedule shall be submitted at least 10 working days prior to the start of the work. The Project Engineer's review of the Schedule will not exceed 5 working days. Work shall not begin until the Schedule is accepted in writing, unless otherwise approved by the Project Engineer.

- (a) Methods Statement. A Methods Statement shall be prepared for the prominent features listed in the Contract Documents, and for any feature not listed in the Contract Documents that the Contractor considers a controlling factor for timely completion. The Methods Statement shall be a detailed narrative describing each feature and all work necessary to complete the feature. The Methods Statement shall be submitted with the Contractor's schedule. The following format is required:
 1. Feature: Name of the feature;
 2. Responsibility: Contractor, subcontractor, supplier, utility, etc. responsible for the feature;
 3. Procedures: Procedures to be used to complete the work. The procedure to be used shall include general information regarding methods such as forming, excavation, pouring, heating and curing, backfill and embankment, trenching, protecting the work, etc. When separate or different procedures are to be employed by the Contractor due to seasonal or project phasing requirements, such differing procedures shall be described in the procedure statement;
 4. Production Rates: The planned quantity of work per day for each feature;
 5. Labor Force: The labor force planned to do the work;
 6. Equipment: The number, types, and capacities of equipment planned to do the work;
 7. Work Times: The planned time for the work to include:
 - (a) number of work days per week
 - (b) number of shifts per day
 - (c) number of hours per shift

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At the Project Engineer's request, the Contractor shall update the Methods Statement, or any part thereof, and submit it with the Job Progress Narrative Report or Schedule Update, whichever is earlier.

- (b) Critical Path Method. CPM is a scheduling method which shows the interdependencies between work activities. The critical path is that path through the schedule which, if delayed, will cause a delay to project completion.

The progress schedule shall include as a minimum the prominent features of this project as listed in the Contract Documents. The progress schedule shall include all activities for all work on the project, including subcontracted work, delivery dates for critical material, submittal and review periods, milestone requirements and no work periods. Where the project has specific phases, each phase shall be described separately for each applicable prominent feature.

Construction activity duration shall not exceed 15 calendar days unless approved by the Project Engineer. Series of activities that have aggregate durations of five calendar days or less may be grouped in a single activity. For example, "form, reinforce, and pour pier" could be defined as a single activity rather than three. Single activities or a series of grouped activities of at least 1 calendar day duration may also need to be included in the Project Schedule as determined by the Project Engineer (e.g. same activities but noted separately by location).

Time Scaled Logic Diagram: This diagram shall show the logical progression of all activities required to complete the work defined in the Contract Documents. Activity information shall include activity ID, description, duration, early start and finish dates, late start and finish dates, total float, and responsibility.

1. 90-Day Schedule. The 90-day Schedule shall provide all necessary detail for procurement, construction and submittal activities required during the first 90 days of contract time. This submittal shall include a Time Scaled Logic Diagram.
2. Project Schedule. The Project Schedule submittal shall consist of a Time Scaled Logic Diagram and Schedule Report. It shall be prepared in full and submitted to the Project Engineer within 45 calendar days after the Project Engineer's acceptance of the 90-day Schedule. The Project Engineer's review of the Project Schedule will not exceed one week. Revisions required as a result of the Project Engineer's review shall be submitted within one week. Work shall not continue beyond the initial 90 days until the Project Schedule is accepted in writing, unless otherwise approved by the Project Engineer.

The Project Schedule shall cover the time from the Day of Notice to Proceed to the predicted completion date.

The Schedule Report shall tabulate for each activity the activity ID, description, duration, earliest start and finish date, latest start and finish date, total float time, and responsibility. Other reports and scheduling documentation may be requested by the Project Engineer

3. Schedule Updates. The Contractor shall update the 90-day Schedule or the Project Schedule to reflect actual construction progress of all work activities on the project. Updates shall show the previous 30 days progress and a 60-day projection for all work started, completed, or in progress during this three month window.

The Project Schedule shall be updated as of the cutoff date for the monthly progress pay estimate and submitted to the Project Engineer before the payment of the progress pay estimate is approved.

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Each of the diagrams, charts, and reports shall comply with the requirements for the Project Schedule above, except that they shall also include the actual completion dates and percentages of completion for the appropriate activities.

- (c) Bar Chart. The Bar Chart shall be time scaled and shall show the following:
1. The prominent features, as listed in the Contract Documents.
 2. Any feature not listed in the Contract Documents that the Contractor considers a controlling factor for timely completion.
 3. The number of days required to complete each feature and its relationship in time to other features.
 4. Sufficient space for each feature to permit two additional plots parallel to the original time span plot.
 5. The anticipated delivery dates for equipment or materials in any feature that could affect timely completion of the project.
 6. Critical completion dates for any activity within any feature that could affect timely completion of the project.
 7. Connecting lines between features that show the intended progression of activities.

The Project Schedule shall cover the time from the Day of Notice to Proceed to the predicted completion date. The Project Schedule shall be updated as of the cutoff date for the monthly progress pay estimate and submitted to the Project Engineer before the payment of the progress pay estimate is approved. The Contractor shall provide a copy of the original bar chart showing, for each feature, the days actually worked and the anticipated days required to complete.

- (d) Project Coordination. The Contractor shall be responsible to coordinate and schedule their work to include utility work anticipated. Various City and private utility agencies may be working to install and/or inspect their utilities within the project area. Reasonable delays should be expected for utility lowering, relocations and placement. These delays shall not be reason for granting any monetary change or performance time alteration to the contract. As a minimum, the Contractor's Project Schedule shall reflect coordination with the following:
1. City of Colorado Springs City Engineering Division
 2. City of Colorado Springs Traffic Engineering Division
 3. Colorado Springs Utilities (water, wastewater, gas, electric)
 4. City of Colorado Springs Parks, Recreation and Cultural Services Department
 5. Private Utility and Telecommunication Companies
- (e) Contractor Early Finish or Voluntary Acceleration. Early finish or voluntary acceleration of the schedule by the Contractor is acceptable provided:
1. At the time the Contractor submits the Project Schedule indicating an early finish or voluntary acceleration, the City is notified in writing of actions on the City's part necessary to accommodate the change(s).
 2. The City agrees to such change(s) in writing.
 3. The City is compensated by the Contractor for any inconvenience or expense associated with the change(s).
 4. There is no increased Contract cost.

A Job Progress Narrative Report shall be submitted bi-weekly as a minimum and with all Schedule updates. It shall detail the description of job progress, problem areas, current and anticipated delaying factors and their anticipated effects, impacts to job milestones or project completion, any corrective action proposed or taken, and any minor revisions to the Schedule. If the Job Progress Narrative Report indicates problem areas and impacts to job milestones or project completion, a revised Schedule Update shall also be submitted as specified below.

Revision of the Schedule may be required, as determined by the Project Engineer, for: a major revision in the schedule logic or methods of construction; the addition, deletion, or revision of activities required by contract modification; delays in milestones or the completion of the project; or for prosecution of work that revises the phasing or staging which is represented on the plans or on the progress schedule. If in the opinion of the Project Engineer, the Contractor falls behind the approved schedule, the Contractor shall take steps necessary to improve project progress, including those steps that may be required by the Project Engineer, without additional costs to the City. In those circumstances where the Contractor is behind schedule, the City may require the Contractor to increase the number of shifts, overtime operations, days of work, and/or the amount of construction plant, and to submit such changes and revisions to the schedule to the Project Engineer for approval that will demonstrate how the approved rate of required progress will be regained. Failure of the Contractor to comply with the requirements of the Project Engineer under this subsection shall be grounds for a determination by the City that the Contractor is not prosecuting the work with sufficient diligence to ensure timely completion of the contract as required.

If it is determined that a revision to the Schedule is required, it shall be provided to the Project Engineer for review within 15 calendar days of written notification. The Project Engineer's review of the revised schedule will not exceed 5 working days. Revisions required as a result of the Project Engineer's review shall be submitted within 5 working days. When accepted by the Project Engineer in writing, the revised schedule shall become the Project Schedule.

The Contractor shall participate in the Project Engineer's review and evaluation of the submittals. Meetings will be held to review progress and planning when requested by the Project Engineer or Contractor. The Project Engineer may request additional project scheduling information and documentation as deemed necessary, including reports and other information that may be reasonably generated using CPM software if required by the contract.

The Contractor shall prosecute the work according to the Schedule. The Contractor shall be responsible for assuring that its subcontractors, suppliers, and engineers/surveyors, at any tier, also prosecute the work according to the Schedule. The City shall be entitled to rely on the Contractor's Schedule for planning and coordination.

Acceptance of the Contractor's Schedule by the Project Engineer is not to be construed as relieving the Contractor of obligation to complete the contract work within the contract time allowed for the portion of the work or the entire Contract, or granting, rejecting or in any other way acting on the Contractor's request for extension of contract time, or claims for additional compensation.

All costs relating to preparation, submittal, and acceptance of the Schedule, reports and revisions, and all requirements of this subsection will not be paid for separately, but shall be included in the work.

Failure of the Contractor to comply with the requirements of this subsection shall be grounds for a determination by the Project Engineer that no further progress payments are to be made until the Contractor is in full compliance.

105.02 SCHEDULE OF VALUES

Promptly following the execution of the contract documents for all lump sum contracts, the Contractor shall prepare and transmit to the Engineer two copies of an itemized breakdown showing the unit quantities of each major construction item and the corresponding unit prices. Such unit prices shall contain all costs including profit and overhead of each item complete in place. The total cost of all the items shall equal the contract price for the project. This breakdown, when approved by the Engineer, will be used primarily in determining payment due the Contractor on periodical estimates. If, in the opinion of the Engineer, any unit price submitted by the Contractor is unbalanced, a detailed breakdown of the items contained in the unit will be required.

For contracts bid on a unit price basis, payment shall be made based on the actual number of units installed or performed that are complete, however, payment shall not exceed the total contract amount unless previously approved by Change Order.

105.03 SURVEYS

Unless otherwise specified in the Contract documents, the City will furnish all site surveys, easements, pipeline licenses, etc., necessary to authorize construction of any permanent works required in the Contract, where such work is to be done on property other than the City's.

The project limits of construction shall be within the public right-of-way and/or easements. The Contractor shall not trespass on premises outside of the limits of construction for this project, unless permission to do so is granted by the property owner in writing. Copies of any such grant shall be furnished to the City prior to the performance of any work outside the limits of construction.

105.04 TAXATION

The Contractor's payment or exemption of State of Colorado, El Paso County and City Sales and Use Taxes shall be as specified in the as specified in the Instructions to Bidders of the Invitation for Bids or Request for Proposals.

105.05 ASSIGNMENT OF CONTRACT

No assignment or transfer by the Contractor of this contract or any part thereof or of the funds to be received thereunder by the Contractor will be recognized unless such assignment has had the prior written approval of the City and the surety has been given due notice of such assignment. Such written approval by the City shall not relieve the Contractor of the obligations incurred by them under the terms of this contract. In addition to the usual recitals in assignment contracts, the following language must be set forth:

It is agreed that the funds to be paid to the assignee under this assignment are subject to a prior lien for services rendered or materials supplied for the performance of the work called for in said contract in favor of all persons, firms, or corporations rendering such services or supplying such materials.

105.06 SUBCONTRACTS

The Contractor will be permitted to sublet a portion of the Contract, however, the Contractor's organization shall perform work amounting to 30 percent or more of the original total cost of bid items. Any items designated in the contract as "specialty items" may be performed by subcontract. The cost of "specialty items" so performed by subcontract may be deducted from the original total cost of bid items before computing the amount of work required to be performed by the Contractor's own organization.

The calculation of the percentage of subcontracted work shall be based on the prime contract unit prices rather than subcontract unit prices. Proportional value for a subcontracted partial contract item will be verified by the Engineer. For the purpose of calculating the value of subcontracted work, the cost of procuring materials and manufactured products can be included in either the prime contractor subcontract. However, when a firm both sells material to a prime contractor and performs the work of incorporating the materials into the project, these two phases shall be considered in combination and as constituting a single subcontract.

The Contractor shall as soon as practical after signing the contract, notify the Project Engineer/Manager in writing, giving the names and qualifications of all subcontractors proposed for work within fifteen (15) business days of notice of award. The City shall have the right to reject subcontractors who are debarred or suspended from doing business with the City of Colorado Springs. The Contractor shall notify the Engineer of each subcontract he awards, giving:

- (a) Name, address, and telephone number of the subcontractor
- (b) Branch of work covered
- (c) Total price of subcontract
- (d) Date of subcontract

It shall be the responsibility of the Prime Contractor to file with the Engineer copies of applicable permits and licenses required to do the subcontracted work. Subcontracts, or transfer of Contract shall not release the Contractor of liability under the Contract and bonds.

105.07 OTHER CONTRACTS

The City may undertake or award other contracts for additional work at or near the site of the work under this contract. The Contractor shall fully cooperate with the other contractors and with City employees and shall carefully adapt their scheduling and performance of the work to accommodate the additional work, heeding any direction that may be directed by the Project Engineer/Manager. The Contractor shall not commit or permit any act, which will interfere with the performance of work by any other contractor.

SECTION 106 CONSTRUCTION SITE

106.00 LANDS TO BE USED FOR WORK

The Contractor shall confine the work activities to the area shown in the construction drawings. The Engineer will furnish the contractor with copies of all executed ROW and easement documents for the project. The established work zone shall be marked and secured with orange safety fence. Any additional work area required within adjoining private properties must be acquired by the Contractor by written permission from the property owner. The Contractor shall restore any damage or disruption to other properties utilized in the performance of this project to an equal or better than pre-construction condition at no cost to the City. The Contractor shall hold the City harmless from any claims to damage or disruption of private property.

Contractor shall provide at their expense and without liability to the City any additional land and access thereto that may be required for temporary construction facilities or for storage of materials. All such costs will be considered incidental to the work and included in the bid by the Contractor. Contractor personnel shall not unnecessarily enter upon private property without the express written consent of the landowner. The Contractor shall provide the Engineer with a copy of the written permission. The City will be held harmless of Contractor negligence in matters of trespassing.

106.01 STORAGE OF MATERIALS

The Contractor shall confine their equipment, apparatus, the storage of materials and operations of Contractor's workmen to limits indicated by law, ordinances, permits, or directions of the City and shall not encumber the project site with materials or equipment not necessary for the project.

106.02 LOADING OF STRUCTURES

The Contractor shall not load or permit any part of the structure to be loaded with a weight that will endanger the structure's safety. The Contractor shall enforce the Engineer's instructions regarding signs, advertisements, fires, and smoke.

106.03 SANITARY PROVISIONS

The Contractor shall provide and maintain on the construction site at all times suitable sanitary facilities for use of those employed on this contract without committing any public nuisance. All toilet facilities shall be subject to the approval of the El Paso County Health Department. All portable toilet facilities for this project shall be kept on City or State right-of-way as directed by the Engineer.

106.04 ACCIDENT PREVENTION

Precaution shall be exercised at all times for the protection of persons, including employees, and property. The safety provisions of all Federal, State and Municipal laws and any other codes relating to the public safety, shall be strictly observed, and the contractor shall, at all times, whether or not so specifically directed by the Engineer, take the necessary precautions to ensure the protection of the public.

Piling, sheeting and shoring shall be utilized where required to prevent any excessive widening or sloughing of the trench which may be detrimental to human safety, traffic flow, the pipe being placed, trees, or to any existing structure.

Excavated materials shall be placed a safe distance from the sides of the trench. Heavy equipment shall not be used or placed near the sides of the trench unless the trench is adequately braced. If the Engineer or any City Safety Officer or their designated representatives become aware of failure to comply with applicable safety regulations, the Engineer or City Safety Officer or their designated representatives may inform the contractor who shall take immediate steps to remedy the noncompliance. The Engineer or City Safety Officer or their designated representatives shall give written notification to the contractor directing them to correct the unsafe acts or conditions. If the contractor fails to comply with such a notification, the Engineer or City Safety Officer or their designated representatives may issue a "stop work" order in accordance with Section 108.06 of the General Provisions of this contract, and work shall only be resumed after adequate corrective actions have been taken to comply with the safety deficiencies the Contractor has been notified of. Stoppage of work because of noncompliance with prescribed accident precaution measures shall not be subject to claim for changed condition or changes in work, nor for extension of completion time.

106.05 PROTECTION OF THE PUBLIC WORKS AND PROPERTY

The Contractor shall provide and maintain all necessary watchmen, barricades, lights, and warning signs and take all necessary precautions for the protection of the public. The contractor shall continuously maintain adequate protection of all work from damage, and shall take all reasonable precautions to protect the City's property from injury or loss arising in connection with the contract. The Contractor shall make good any damage, injury, or loss to their work and to the property of the City resulting from lack of reasonable protective precautions except such as may be due to errors in the contract documents, or caused by agents or employees of the City. The Contractor shall check all cautionary signs at least once a day during this contract.

The Contractor shall continuously maintain adequate protection of all their work from damage and shall protect the City's and adjacent property from injury arising in connection with this contract.

The Contractor will be responsible for any and all damage to property, public or private, that may be caused by their operations in the performance of this contract, and the Contractor shall defend any suit that may be brought against themselves or the City on account of damage inflicted by their operations, and shall pay any judgments awarded to cover such damage.

The Contractor shall be responsible for the restoration of all existing surface or subsurface improvements damaged as a result of construction at no additional cost to the City.

106.06 PUBLIC ROADS

The Contractor in executing the work on this project shall not unnecessarily impede or interfere with traffic on public highways or streets. Detours, including surfacing, guard rails, temporary bridges and culverts, as may be shown on the drawings, or ordered by the Engineer to accommodate the general public, residents adjacent to the improvements, and the United States mail shall be provided and maintained by the Contractor in a good workmanlike manner. Any call out of City Barricade Crews shall be charged to and paid for by the Contractor.

All work done within the public right-of-way and/or easements requires an approved Traffic Control Plan by the City Traffic Engineering Division.

The Contractor shall provide and maintain in place all barricades, warning signs, lights and other safety devices required to protect the work, divert traffic, and warn pedestrians of open excavation, unfilled trenches, and other areas or conditions which might be hazardous or dangerous during the daylight or dark. Detour routings must first be submitted to the Traffic Engineer for review and approval and shall be signed for the entire route of the detour as required to return the traffic to their street or origination. Detours shall be maintained throughout the period of construction in such a manner as to provide the least amount of disruption to normal traffic flow

All signing and barricading shall conform to the latest editions of the following:

- (a) Manual of Uniform Traffic Control Devices for Street and Highways (MUTCD)
- (b) City of Colorado Springs Traffic Signage and Markings Manual
- (c) City of Colorado Springs Construction Traffic Control Manual

The Traffic Engineer may require flag persons or off-duty police officers for traffic direction. Any call out of the City Barricade crews shall be charged to the Contractor.

106.07 PROTECTION OF EXISTING CURBS, GUTTERS AND DRIVEWAYS

The Contractor shall exercise care in protecting existing curbs, gutters and driveways. Curbs, gutters and driveways damaged by the Contractor's operations shall be removed and replaced by the Contractor at Contractor's expense.

106.08 PROTECTING AND REMOVING PLANTINGS

The Contractor shall protect all existing trees, shrubs and other plantings from above ground and root structure damage during the construction activities. Plantings which are considered to be slightly damaged shall be properly pruned and sealed according to accepted nursery practices. Unnecessary damage to plants or trees will subject the Contractor to cash penalties as determined by the Engineer. Where plantings are in conflict with new work, as determined by the City Forester (plantings in the public right-of-way) or by the inspector or owner (plantings on private property), the Contractor shall at his expense remove the planting. The Contractor shall coordinate with the City Forester prior to working in the vicinity of plantings in the public right of way.

In all cases, the proper planting season shall be observed to assure proper establishment and growth of the plantings.

Tree branches shall be trimmed back to the trunk, all around, to a minimum height of 8' above the adjacent walkway. Work shall be done only by a licensed Tree Service.

106.09 PUBLIC CONVENIENCE AND SAFETY

The contractor shall conduct the work to minimize obstruction to traffic and inconvenience to property owners within the project area. The Contractor shall be responsible for notifying the Property Owners at least 48 hours in advance of any construction that may affect access, parking and/or existing structures, including fences, adjacent to that property. Suitable access and parking will be maintained at all times. Relocating of fences and structures shall be coordinated with owners and shall include miscellaneous items including, but not limited to, temporary fence, sod replacement, sprinkler system modifications, railroad tie walls, etc. If no bid items are included in the contract, these items will be considered incidental to the work and are to be included in the unit prices.

The Contractor shall coordinate the relocation of fencing, landscaping, sprinklers, control boxes, utility services, street signs and mail boxes and the salvaging of any materials suitable for re-use with the City Inspector and, if on private property, with the respective property owners.

The Contractor shall notify and coordinate the closing and construction of the driveways, curb, gutter and sidewalks with the Project Engineer and the adjoining property owners in advance of work in writing. Any restrictions on street parking or traffic movement shall be coordinated with the City Traffic Engineer. The Contractor shall make every effort to minimize the inconvenience to property owners and to the traveling and pedestrian public.

106.10 COORDINATION WITH PROPERTY OWNERS

The Contractor shall be responsible for notifying the Property Owners at least 48 hours in advance of any construction that may affect access, parking and/or existing structures, including fences adjacent to that property. Suitable access and parking will be maintained at all times. Relocating of fences and structures shall be coordinated with owners and shall include miscellaneous items including, but not limited to, temporary fence, sod replacement, sprinkler system modifications, railroad tie walls, etc. These items are considered to be incidental to the work and are to be included in the unit prices.

The Contractor shall coordinate the relocation of fencing, landscaping, sprinklers, control boxes, utility services, street signs and mail boxes and the salvaging of any materials suitable for re-use with the City Inspector and, if on private property, with the respective property owners.

The Contractor shall notify and coordinate the closing and construction of the driveways, curb, gutter and sidewalks with the Project Engineer and the adjoining property owners in advance of work in writing. Access may be limited to half the existing driveway width for limited periods during concrete driveway and street construction. An additional verbal notice shall be provided to each business 30 minutes prior to the actual access drive closure.

Any restrictions on street parking or traffic movement shall be coordinated with the City Traffic Engineer. The Contractor shall make every effort to minimize the inconvenience to the traveling and pedestrian public.

106.11 FAILURE TO MAINTAIN SAFE SITE

In case of injury to persons or property by reason of failure to erect and to maintain necessary barricades, safeguards, and signals, or by reason of any act of negligence of the Contractor, or Contractor's subcontractors, agents, or employees, during the performance of this contract, the City may withhold payments due the Contractor so long as shall be reasonably necessary to indemnify the City on account of any such injuries, but the City's payment or failure to pay any sum shall not be considered as a waiver of its right under the indemnity provision of this contract.

106.12 EROSION AND DRAINAGE CONTROL

Contractor shall provide for the drainage of stormwater and such water as may be applied or discharged on the site in performance of the work per the latest revision of the City of Colorado Springs Drainage Criteria Manual, Volume II. Drainage facilities shall be adequate to prevent damage to the work, the site and adjacent property.

The Contractor shall prevent the pollution of drains and watercourses by sanitary waste, sediment, debris or other substances resulting from this work. He shall be required to clean up and isolate such materials on a continuing basis to prevent risk of washing into such drainage ways.

Should the affected areas of the project exceed 1 acre a Stormwater Discharge Permit shall be required. Affected area includes excavations, material stockpiles and areas where equipment and vehicles disturb the ground. An exact definition should be obtained from the CDPHE.

106.13 POLLUTION

The Contractor shall at all times ensure compliance with applicable Federal, State, and Municipal air, water, and noise pollution laws and ordinances. The Contractor shall at all times have the proper sprinkling equipment available and shall apply water in the amount determined by each

site condition or as directed by the Engineer. The Contractor shall obtain all necessary permits at Contractor's expense, which may include, but not be limited to, El Paso County or a State Air Emission permit, State of Colorado Construction Activity permit, State of Colorado Dewatering permit and Section 404 Corp of Engineers permit, unless otherwise specified in the Invitation for Bids.

106.14 TEMPORARY CONSTRUCTION

All temporary facilities, including the Contractor's field office which they may maintain at the site, and additional offices erected by subcontractors, shall be neatly constructed and arranged on the site in an orderly manner. The Contractor shall prepare and submit to the Engineer, for approval prior to starting work, a construction plan layout, showing arrangement of storage areas, temporary buildings, equipment, and work areas. The Contractor shall provide suitable weather-tight storage sheds of capacity required to contain all materials which might be damaged by storage in the open. The Contractor shall at all times keep copies of all contract documents readily accessible at their office at the site.

106.15 TEMPORARY WATER SUPPLY

The Contractor shall provide at Contractor's own expense temporary water connections and water supply necessary for the prosecution of the work and permit all contractors on the work to use this supply at a reasonable prorated charge, or by sub-metering. The Contractor shall pay for all water consumed in the work, and shall arrange with municipal authorities for temporary connections and payment of service charges. (Use most current Code of the City of Colorado Springs). Upon completion of the contract work, all temporary waterlines shall be removed.

106.16 TEMPORARY ELECTRIC LIGHT AND POWER

The Contractor shall arrange with the City Utility Departments for temporary electric light and power necessary for the prosecution of the work. The Contractor shall pay for all electric current consumed, and shall permit all contractors on the work to use this supply at a reasonable prorated charge, or by sub-metering.

106.17 TEMPORARY HEAT

The Contractor shall provide adequate, temporary heat required during construction. Until the building or work area is enclosed, heavy tarpaulin shall be used to enclose any space requiring heating or protection from weather during construction operations. After the heating plant is in operating condition and the building is enclosed, heat may be provided from the permanent heating plant if such is approved by the Engineer. In such case, the Contractor shall arrange to operate the plant, connect permanent or temporary radiation or unit heaters, and so maintain the plant during operation that it will be turned over to the City undamaged at the completion of the work. The Contractor shall provide all fuel required. In no case shall salamander heating be used in finished or plastered surfaces; instead, gas-steam radiators, unit heaters, or other suitable and approved means shall be used if the permanent heating plant is not available.

106.18 TEMPORARY ENCLOSURES

The Contractor shall provide and maintain temporary enclosures for the work as may be required to permit continuation of interior work during inclement weather, if wall and roof construction has progressed sufficiently to make interior work possible.

106.19 CLEAN-UP

The Contractor shall at all times keep the work area including storage and staging areas, free from accumulations of waste materials. The Contractor is also responsible for any costs associated with cleanup of debris from the work site or storage areas that may inadvertently be scattered outside the area by weather or vandalism. Upon completion of the work, the Contractor shall leave the work area in a clean neat and orderly condition satisfactory to the Project Engineer/Manager.

SECTION 107 INSURANCE AND INDEMNITY**107.00 CONTRACTOR'S INSURANCE**

For the duration of the Contract, Contractor shall, at his own expense, procure and maintain insurance and shall require all subcontractors of all tiers to provide and maintain insurance of the type and in the limits as set forth below, on all operations, in companies authorized to do business in the State of Colorado and rated by A.M. Best's Rating as A:VIII or better, or in companies acceptable to City of Colorado Springs, as follows:

(a) Workers' Compensation and Employer's Liability Insurance.

Workers' Compensation insurance shall be provided as required by an applicable law or regulation. Employer's liability insurance shall be provided in amounts not less than \$500,000 each accident for bodily injury by accident, \$500,000 policy limit for bodily injury by disease, and \$500,000 each employee for bodily injury by disease. The contractor shall require each subcontractor similarly to maintain Workers' Compensation and Employer Liability insurance.

(b) General Liability Insurance.

Commercial General Liability insurance covering all operations by or on behalf of Contractor providing insurance for bodily injury liability and property damage liability for the limits of liability indicated below and including coverage for:

- (2) premises and operations liability;
- (3) products liability
- (4) completed operations liability shall be provided for two years following substantial completion of the work;
- (5) contractual liability insuring the obligations assumed by Contractor in this agreement;
- (6) property in the care, custody and control of the contractor;
- (7) X.C.U. Coverage – If the contract requires any work procedures involving blasting, excavating, tunneling, or other underground work, the liability coverage shall include coverage commonly referred to as X.C.U. for explosion, collapse and underground hazards.
- (8) personal injury liability; and
- (9) railroad liability within 50' of railroad, if working within the vicinity of any railroad, bridge, trestle, track, roadbed, tunnel, underpass or crossing.

Except with respect to bodily injury and property damage included within the products and completed operations, the aggregate limits, where applicable, shall apply separately to Contractor's work under this Contract.

The limits of liability shall not be less than:

- \$1,000,000 each occurrence (combined single limit for bodily injury and property damage)
- \$1,000,000 for Personal Injury Liability
- \$2,000,000 Aggregate for Products-Completed Operation
- \$2,000,000 General Aggregate

(c) Automobile Liability Insurance.

The Contractor shall carry Automobile Liability Insurance (Bodily Injury and Property Damage Liability) including coverage for all owned, hired and non-owned automobiles. The limits of liability shall not be less than \$1,000,000 Combined Single Limit for each accident. Contractor's Automobile Liability insurance policy shall include coverage for Automobile Contractual Liability.

(d) Professional Liability.

If the agreement requires any work for professional services, contractor, must carry Professional Liability insurance including errors and omission coverage in an amount not less than \$1,000,000 per occurrence or claims made and aggregate.

(e) Pollution Liability.

In the event the Services involve any excavation, subsurface, underground, or dewatering work, contractor must carry at all times during the term of this Agreement, and for twenty-four (24) months following termination of this Agreement, a Pollution Liability policy with limits not less than \$1,000,000 per occurrence (or claims made) and not less than \$1,000,000 aggregate for Bodily Injury, Personal Injury and Property Damage. This coverage must include any losses arising from transit exposures and also include all costs associated with clean-up, containment, and disposal of any hazardous liquids or materials.

(f) Umbrella/Excess Liability.

- (1) In the event the value of this Agreement is \$50,000 or more, contractor shall maintain umbrella/excess liability insurance in an amount of not less than \$1,000,000 with respect to coverage required under the Commercial General Liability, Automobile Liability and Employer's Liability. This coverage must be Umbrella coverage, offering coverage "at least as broad as all underlying coverages."
- (2) In the event the value of this Agreement exceeds \$50,000, contractor shall maintain umbrella/excess liability insurance in an amount of not less than \$5,000,000 with respect to coverage required under the Commercial General Liability, Automobile Liability and Employer's Liability. This coverage must be Umbrella coverage, offering coverage "at least as broad as all underlying coverages." Subcontractors shall be required to maintain umbrella/excess liability insurance limits of at least \$1,000,000.

(g) Deductible or Self-Insured Retention.

Any deductible or self-insured retention must be declared to the City. Any and all deductibles or self-insurance retentions in the foregoing insurance policies shall be assumed by and be for the account of, and at the sole risk of the contractor and its subcontractors.

Contractor shall verify its subcontractors' compliance with the requirements of sections (a) through (g), and cause their certificates of insurance to be provided to contractor, and upon request, to be made available to utilities.

On all policies except for Workers' Compensation and Employer's Liability, and Professional Liability, the certificates shall also contain a specific endorsement adding the City as additional insured's, as well as specifically stating that all coverage furnished by contractor is primary, and that any insurance held by the City is excess and non-contributory. Certificates of insurance shall be furnished by contractor to the City before any Services are commenced hereunder by contractor. The certificates of insurance shall provide that there will be no cancellation, reduction or modification of coverage without thirty (30) days' prior written notice to the City except for 10 days notice with respect to non-payment of premium. If Contractor does not comply with this section, the City may, in addition to any other remedies it may have, terminate this Agreement, subject to any provision of this Agreement. Alternatively, the City may, at its option, provide insurance coverage to protect the City and charge contractor for the cost of that insurance. The required insurance shall be subject to the approval of the City, but any acceptance of insurance certificates by the City shall not limit or relieve the contractor of the duties and responsibilities assumed by it under this Agreement.

The insurance coverage required within this entire subsection shall not minimize, limit, nor eliminate the Contractor's responsibility for any uninsured or uncovered claims, losses, or expenses occurring during or after completion of construction of this project.

The foregoing requirements as to the types and limits of insurance coverage to be maintained by Contractor, and any approval of said insurance by the City, or their insurance consultant(s) are not intended to and shall not in any manner limit or qualify the liability and obligations otherwise assumed by Contractor pursuant to this agreement, including but not limited to the provisions concerning indemnification.

The City reserves the right to withhold payments to Contractor in the event of material noncompliance with the insurance requirements outlined above.

107.01 BUILDER'S RISK INSURANCE.

The City will maintain Builder's Risk or Installation Floater insurance or self-insure, protecting the interests of the City and the Contractor. Insurance coverage will be provided on an "all-risk", replacement-cost basis, insuring against all insurable risks of physical loss or damage. The City may purchase flood and earthquake coverage that could be subject to varying deductibles. The policies for such insurance will be secured and maintained by the City in a form and amount consistent with such coverage commonly purchased for large construction projects.

- (a) Coverage will include materials, supplies, and equipment that are intended for specific installation in the work while such materials, supplies and equipment are located at the project site.
- (b) This insurance will not include coverage for tools or clothing of workers, or tools, equipment, protective fencing, scaffolding, temporary structure, bracing, or forms owned, rented, or used by the Contractor, its subcontractors, or uninsured parties and used in the performance of the work, unless such items are specifically identified in the contract and their values declared under the builder's risk insurance policy.
- (c) The City, its Board of Directors, officers, agents, employees, and consultants rendering services at the project site will not be liable or responsible for loss or damage to the items excluded under the Builder's Risk coverage, and the Contractor shall indemnify and hold harmless the City, its Board of Directors, officers, agents, employees, its consultants rendering services at the project site, other project contractors, and their subcontractors from claims or causes of action brought by any person or parties as a result of loss or damage to such excluded items.
- (d) The Builder's Risk policy will be endorsed waiving the carrier's rights of recovery under subrogation against the City, its Board of Directors, officers, agents, employees, and consultants rendering services at the project site and the Contractor.
- (e) The Contractor shall be liable for a deductible not to exceed \$10,000.00 for each occurrence insured under the coverage.

The insurance coverage required within this entire subsection shall not minimize, limit, nor eliminate the Contractor's responsibility for any uninsured or uncovered claims, losses, or expenses occurring during or after completion of construction of this project.

The foregoing requirements as to the types and limits of insurance coverage to be maintained by Contractor, and any approval of said insurance by the City, or their insurance consultant(s) are not intended to and shall not in any manner limit or qualify the liability and obligations otherwise assumed by Contractor pursuant to this agreement, including but not limited to the provisions concerning indemnification.

The City reserves the right to withhold payments to Contractor in the event of material noncompliance with the insurance requirements outlined above.

107.02 INDEMNIFICATION

Contractor agrees that the Contractor shall indemnify, defend and hold harmless the City, its officers, employees and agents, from and against any and all loss, damage, injuries, claims, cause or causes of action, or any liability whatsoever resulting from, or arising out of, or in connection with the Contractor's obligations or actions under this Contract due to the Contractor's errors, omissions or negligence.

107.03 THIRD PARTY LIABILITY

It is specifically agreed between the parties executing this contract that this contract is not intended by any of the provisions to create in the public or any member thereof any third party beneficiary rights whatsoever, or to authorize anyone not a party to this contract to maintain a suit for personal injuries or property damage pursuant to the terms or provisions of this contract.

107.04 RISK INSURANCE

Unless otherwise set forth in the Contract Documents, the City shall not maintain risk insurance on the project.

SECTION 108 ROYALTIES, PATENT INFRINGEMENTS, SPECIAL LICENSES AND PERMITS

108.00 ROYALTIES AND PATENTS

The Contractor shall pay all applicable royalties and license fees. The Contractor shall defend all suits or claims for infringement of any patent rights and save the City harmless from loss on account thereof except that the City shall be responsible for any such loss when a particular process, design, or the product of a particular manufacturer or manufacturers is specified, unless the City has notified the Contractor prior to the signing of the contract that the particular process, design, or product is patented or is believed to be patented.

108.01 PERMITS, LICENSES AND REGULATIONS

Permits and licenses necessary for the prosecution of the work shall be secured and paid for by the Contractor. The Contractor shall be responsible for all water and wastewater tap fees and water and wastewater connection fees as set forth in the Code of the City of Colorado Springs, as amended. Projects that involve Building Permits and sprinkler systems will require water or wastewater connection fees or both.

Licenses and easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by the City, unless otherwise specified. The Contractor shall give all notices and comply with all laws, ordinances, rules, and regulations bearing on the conduct of the work as drawn and specified. If the Contractor observes that the Plans and Specifications are at variance therewith, he shall promptly notify the Engineer in writing, and any necessary changes shall be adjusted as provided in the contract for changes in the work.

Prior to the start of construction, the Contractor shall procure all permits and licenses, pay all charges, fees and taxes, and give all notices necessary and incidental to the due and lawful prosecution of the work. Copies of the fully executed permits shall be furnished to the Engineer. It is the responsibility of the Contractor to be aware of the terms and conditions of all permits, and it is the Contractor's responsibility that the terms and conditions are satisfied, including but not limited to the requirements of subsections 103.05 and 106.12.

SECTION 109 WORK PROVISIONS AND RULES

109.00 COMMENCEMENT AND COMPLETION OF WORK

- (a) Preconstruction Conference. After issuance of Notice of Award, or as otherwise established by the City, a preconstruction conference shall be held for review of the construction schedule, Contractors written list of subcontractors and suppliers, written list

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of all required permits, project contracts, utility support plan, water control plan, Traffic Control Supervisor name and telephone number, gradations, test results, certifications, review procedures for handling shop drawings and other submittals, processing applications for payment, and other pertinent items.

- (b) At the Preconstruction Conference, the Contractor shall furnish the engineer a written list of all permits required for the proper completion of the Contract. The list shall clearly identify the type of permit or permits that must be obtained before work on any particular phase or phases of work can be started.
- (c) The Contractor shall commence work within ten (10) calendar days after the date specified on the Notice to Proceed and complete the contract within the number of calendar days or by the date specified in the proposal form. Unless otherwise noted in the Contract, the number of days identified in the Proposal Form are calendar days.
- (d) The dates fixed for commencement and completion of the work may be extended by the Engineer. All requests for extension of time by the Contractor shall be made in writing to the Engineer and shall set forth the reasons for such requests. The Engineer shall fix the period of extension, if any. The Engineer's decision shall be binding upon the parties hereto. Requests for extension of time received twenty (20) or more days after the occurrence of the delay will not be honored. No requests for extension of time shall be honored if submitted after the completion date.
- (e) If satisfactory execution and completion of the contract shall require work or materials in greater amounts or quantities other than those set forth in the contract, then the contract time shall be adjusted at the time of the execution of the Change Order. No allowance will be made for delays or suspension of the prosecution of the work due to the fault of the Contractor.

109.01 FAILURE TO COMPLETE WORK ON TIME, LIQUIDATED DAMAGES

If the Contractor fails to fully perform and complete the work in conformity to the provisions and conditions of the contract within the specified time limit set forth in the contract, including any extensions granted hereto, the Contractor shall pay to the City for each calendar day of delay until such time the contract is complete, liquidated damages at the applicable daily rate below. The amounts shown are considered to be liquidated damages to reimburse the City for the additional cost of construction engineering and contract administration services and in no case are considered a penalty.

Original Contract Amount	Amount of Liquidated Damages Per Day
Less than \$50,000	\$300.00
\$50,000 to \$100,000	\$500.00
\$100,000 to \$500,000	\$700.00
\$500,000 to \$1,000,000	\$900.00
Over \$1,000,000	\$1500.00

109.02 WORK IN BAD WEATHER

No construction work shall be done during stormy, freezing, or inclement weather, except such as can be done satisfactorily, and in a manner to secure first class construction throughout, and then only subject to permission of the Engineer.

The granting of a time extension for inclement weather does not imply or guarantee that additional compensations for incidental and appurtenant work caused by such weather will be approved or authorized by the Engineer. The Contractor is instructed to include as part of the Contractor's total bid price the costs for such weather delays as can be reasonably anticipated. The Engineer will be the sole judge as to the reasonableness of delays for inclement weather.

109.03 EXCUSABLE DELAYS

The Contractor's right to proceed will not be terminated nor the Contractor charged with damages for delay in completing the work that arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such causes include:

- (a) Acts of God or of the public enemy,
- (b) Acts of the Government in either its sovereign or contractual capacity,
- (c) Acts of another Contractor in the performance of a contract with the Government,
- (d) Fires,
- (e) Floods,
- (f) Epidemics,
- (g) Quarantine restrictions,
- (h) Strikes,
- (i) Freight Embargos,
- (j) Unusually severe weather, or
- (k) Delays of subcontractors or suppliers at any tier arising from unforeseeable causes beyond the control and without the fault or negligence of both the Contractor and the Subcontractors or Suppliers.

109.04 COMPENSATION FOR COMPENSABLE DELAYS

If the Engineer determines that a delay is compensable in accordance with the Contract, monetary compensation will be determined in accordance with this subsection.

- (a) These categories represent the only costs that are recoverable by the Contractor. All other costs or categories of costs are not recoverable:
 1. Actual wages and benefits, including FICA, paid for additional non-salaried labor;
 2. Costs for additional bond, insurance and tax;
 3. Increased costs for materials;
 4. Equipment costs calculated in accordance with the current edition of the Rental Rate Blue Book of Rental Rates for Construction Equipment for Contractor owned equipment and based on invoice costs for rented equipment;
 5. Costs of extended job site overhead;
 6. Subcontractor's claims (the same level of detail as specified herein is required for all subcontractors' claims)
 7. An additional 10 percent will be added to the total of items (1), (2), (3), (4), (5), and (6) as compensation for items for which no specific allowance is provided, including profit and home office overhead.
- (b) In adjustment for costs as allowed above, the City will have no liability for the following items of damages or expense:
 1. Profit in excess of that provided in (a) above;
 2. Loss of profit;
 3. Additional cost of labor inefficiencies in excess of that provided in (a) above;
 4. Home office overhead in excess of that provided in (a) above;
 5. Consequential damages, including but not limited to loss of bonding capacity, loss of bidding opportunities, and insolvency;
 6. Indirect costs or expenses of any nature in excess of that provided in (a) above;
 7. Attorneys fees, claim preparation fees, and expert fees.

All costs claimed must be documented and accompanied by a written certification from the Contractor.

109.05 EMERGENCY WORK

In an emergency affecting the safety of life or of the work or of adjoining property, the Contractor is, without special instructions or authorization from the Engineer, hereby permitted to act at Contractor's discretion to prevent such threatening loss or injury. Contractor shall also act, without appeal, if so authorized or instructed by the Engineer. Any compensation claimed by the Contractor on account of emergency work shall be determined by agreement or in accordance with the Changes in Work Provision of this contract.

109.06 VALUE ENGINEERING CHANGE PROPOSALS BY THE CONTRACTOR

The Contractor is encouraged to develop and offer proposals for improved construction techniques, alternative materials and other innovations. Proposals must provide a project comparable to the City's original design either at lower cost, with improved quality, or both. Bid prices shall not be based on the anticipated approval of a Value Engineering Change Proposal (VECP). Proposals shall be submitted only by the successful bidder after contract award. If a VECP is rejected, the work shall be completed in accordance with the Contract at contract bid prices. The Contractor shall have no claim against the City for compensable or noncompensable delay to the Contract based on the failure to respond to the proposal.

The Contractor may submit either a full VECP or a preliminary Conceptual VECP, followed by a full proposal. The Engineer will provide timely review of all proposals and advise the Contractor whether the Proposal is complete or incomplete. When the proposal is complete, the Engineer will advise the Contractor of either the approval of the proposal or the reasons for rejection of the proposal.

Cost savings generated to the Contract as a result of VECPs offered by the Contractor and accepted by the Engineer shall be shared equally between the Contractor and the City.

If the Engineer determines that the time for response indicated in the submittal under item (c)5 below is insufficient for review, the Contractor will be promptly notified. Based on the additional time needed by the Engineer for review and the effect on the Contractor's schedule caused by the added time, the Engineer will evaluate the need for a non-compensable time adjustment to the Contract.

- (a) VECPs that will be considered are those that would produce savings to the City or provide improved project quality without impairing essential functions and characteristics of the facility. Essential functions include but are not limited to: service life, economy of operation, ease of maintenance, desired appearance, safety, and impacts to the traveling public or to the environment during and after construction.
- (b) *Submittal of Conceptual Proposal.* For VECPs that require a significant amount of design or other development resources, the Contractor may submit an abbreviated Conceptual Proposal for preliminary evaluation. The Engineer will evaluate the information provided and advise the Contractor if any conditions or parameters of the Conceptual Proposal are found to be grounds for rejection. Preliminary review of a conceptual proposal reduces the Contractor's risk of subsequent rejection but does not commit the City to eventual approval of the full VECP. The following information shall be submitted for each Conceptual Proposal.
 1. A statement that the proposal is submitted as a Conceptual VECP.
 2. A general description of the difference between the existing Contract and the proposed change, and the advantages and disadvantages of each, including effects on cost, service life, economy of operation, ease of maintenance, desired appearance, safety, and impacts to the traveling public or to the environment during and after construction.
 3. A set of conceptual plans and a description of proposed changes to the Contract specifications.
 4. An estimate of the anticipated cost savings or increase.
 5. A statement specifying:

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- a. when a response to the conceptual proposal from the City is
- b. required to avoid delays to the existing contract prosecution,
- c. the amount of time necessary to develop the full Proposal,
- d. the date by which a Contract Modification Order must be executed
- e. to obtain maximum benefit from the Proposal, and
- f. the Proposal's impact on time for completing the Contract.

(c) *Submittal of Full Value Engineering Change Proposal.* The following materials and information shall be submitted with each proposal.

1. A statement that the proposal is submitted as a VECP.
2. A description of the difference between the existing Contract and the proposed change, and the advantages and disadvantages of each, including effects on service life, economy of operation, ease of maintenance, desired appearance, safety, and impacts to the traveling public or to the environment during and after construction.
3. A complete set of plans and specifications showing the proposed revisions relative to the original Contract. This portion of the submittal shall include design notes and construction details. The proposed plans and specifications shall be signed and sealed by the Contractor's engineer.
4. A complete analysis indicating the final estimated costs and quantities to be replaced by the Proposal compared to the new costs and quantities generated by the Proposal. All costs and proposed unit prices shall be documented by the Contractor.
5. A statement specifying the date by which a Contract Modification Order must be executed to obtain the maximum cost reduction during the remainder of the Contract.
6. A statement detailing the effect the Proposal will have on the time for completing the Contract.
7. A description of any previous use or testing of the proposed changes and the conditions and results. If the Proposal was previously submitted on another City project, the proposal shall indicate the date, Contract number, and the action taken by the City.
8. An estimate of any effects the VECP will have on other costs to the City.
9. A statement of life cycle costs, when appropriate. Life cycle costs will not be considered as part of cost savings but shall be calculated for additional support of the Proposal. A discount rate of four percent shall be used for life cycle calculations.
10. A statement specifying when a response from the Owner is required to avoid delays to the prosecution of the Contract.

(d) *Evaluation.* VECPs will be evaluated in accordance with the following:

1. The Engineer will determine if a Proposal qualifies for consideration and evaluation. The Engineer may reject any Proposal that requires excessive time or costs for review, evaluation, or investigations. The Engineer may reject proposals that are not consistent with the City's design policies and criteria for the project.
2. The Engineer will reject all or any portion of work performed under an approved VECP if unsatisfactory results are obtained. The Engineer will direct the removal of such rejected work and require construction to proceed under the original Contract requirements without reimbursement for work performed under the proposal, or for its removal.
3. VECPs, whether or not approved by the City, apply only to the ongoing Contracts referenced in the Proposal and become the property of the City. Proposals shall contain no restrictions imposed by the Contractor on their use or disclosure. The City has the right to use, duplicate and disclose in whole or in part any data necessary for the utilization of the Proposal. The City retains the right to utilize any accepted Proposal or part thereof on other projects without obligation to the Contractor. This provision is subject to rights provided by law with respect to patented materials or processes.
4. If the City is already considering certain revisions to the Contract or has approved certain changes in the Contract for general use that are subsequently proposed in a VECP, the Engineer will reject the Proposal and may proceed to implement these changes without obligation to the Contractor.

5. The Contractor shall have no claim against the City for additional costs or delays resulting from the rejection or untimely acceptance of a VECP. These costs include but are not limited to: development costs, loss of anticipated profits, increased material or labor costs, or untimely response.
6. Proposals will be rejected if equivalent options are already provided in the Contract.
7. Proposals that only reduce or eliminate contract pay items will be rejected.
8. The savings generated by the Proposal must be sufficient to warrant a review and processing, as determined by the Engineer.
9. A Proposal changing the type or thickness of the pavement structure or changing the design of a bridge will be rejected.
10. Additional information needed to evaluate Proposals shall be provided in a timely manner. Untimely submittal of additional information will result in rejection of the Proposal. Where design changes are proposed, the additional information shall include results of field investigations and surveys, design and computations, and changed plan sheets required to develop the design changes.

(e) *Payment.* If the VECP is accepted, the changes and payment will be authorized by Contract Modification Order. Reimbursement will be made as follows:

1. The changes will be incorporated into the Contract by changes in quantities of unit bid items, new agreed unit price items, or both, as appropriate, under the Contract.
2. The cost of the revised work as determined from the changes will be paid to the Contractor. The City will pay the Contractor 50 percent of the savings to the City upon completion of the value analysis work. The savings to the City shall be the difference between the cost of the revised work and the cost of the related construction required by the original Contract computed at Contract bid prices.
3. Costs incurred by the Contractor for development, design, and implementation of the VECPs will not be reimbursed.
4. When work performed under an approved VECP is modified to fit field or other conditions, the maximum amount paid for the work will be limited to that which would have been paid if the work had been performed under the original contract provisions. The rejection or limitation of reimbursement shall not constitute the basis of any claim against the City for delay or for other costs except as allowed under the original Contract.

109.07 AUTHORITY OF THE ENGINEER

The Engineer will decide all questions regarding the quality and acceptability of materials furnished, work performed, and the rate of progress of the work; all interpretation of the plans and specifications; and the acceptable fulfillment of the Contract. The Engineer will perform technical inspection of the work and shall have authority to reject all work and materials which do not conform to the Contract.

The Engineer has authority to stop the work whenever such stoppage may be necessary to insure the proper execution of the Contract or for the convenience of the City. The Project Engineer/Manager may order the Contractor, by giving fifteen (15) days written notice, to suspend, delay, or interrupt all or any portion of the work required by the Contract for a period of up to 10 ten calendar days at no additional cost to the City. The Engineer may immediately stop the work when it is determined that the public's safety and welfare is in jeopardy.

The Engineer shall, within a reasonable time after their presentation to the Engineer, make decisions in writing on all claims submitted to the City by the Contractor and on all other matters relating to the execution and progress of the work or the interpretation of the Contract Documents. The Engineer's decisions shall be final.

109.08 DUTIES OF THE INSPECTOR

Inspectors employed by the City are authorized to inspect all work done and materials furnished. This inspection may extend to all or any part of the work and to the preparation, fabrication or manufacture of the materials to be used. The inspector is not authorized to alter or waive the

provisions of the Contract. The inspector is not authorized to issue instructions contrary to the provisions of the Contract or to act as foreman for the Contractor.

109.09 CONSTRUCTION OBSERVATION AND INSPECTION

The Engineer shall at all times have access to the work and the Contractor shall provide proper equipment, materials and labor as required for such access and inspection.

All equipment, material, and articles incorporated into the work covered by this contract shall be new and of the most suitable grade for the purpose intended, unless otherwise specifically provided in this contract. The Engineer shall have the right to reject materials and workmanship, which are defective, or require their correction. Rejected workmanship shall be satisfactorily corrected and rejected materials shall be removed from the premises without charge to the City. If the Contractor does not correct such condemned work and remove rejected materials within a reasonable time fixed by written notice, the City may remove them and charge the expense to the Contractor.

Should it be considered necessary or advisable by the Engineer at any time before final acceptance of the entire work to make an examination of work already completed, by removing or tearing out same, the Contractor shall on request promptly furnish necessary facilities, labor and materials. If such work is found to be defective in any material respect due to fault of the Contractor or his subcontractors, he shall defray all the expenses of such examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the contract, the actual cost of labor and material necessarily involved in the examination and replacement, plus fifteen (15) percent, will be allowed the Contractor.

All materials to be incorporated in the work, all labor performed, all tools, appliances, and methods used shall be subject to the inspection and approval or rejection of the Engineer.

If the Engineer shall point out to the Contractor, Contractor's foreman, or agent any neglect or disregard of the contract provisions, such neglect or disregard shall be remedied and further defective work be at once discontinued.

The Contractor shall execute the work only in the presence of the Engineer or authorized representative, unless provision has been made for the work to proceed without complete engineering supervision or inspection. The presence of the Engineer or authorized representative shall in no way relieve the Contractor of the responsibility of this contract, or be any warrant for the furnishing of bad material or poor workmanship.

The observation of the work by the Engineer is intended to aid the Contractor in applying labor, materials, and workmanship in compliance with the contract provisions. Such observation, however, shall not relieve the Contractor from any of Contractor's contract obligations.

109.10 CONTRACTOR COOPERATION

All work under this contract shall be performed in a skillful and professional manner. The Project Engineer/ Manager shall have the authority to notify the Contractor in writing, that the Contractor remove from the work site any employee the Project Engineer/Manager deems incompetent, careless, or otherwise objectionable to the general public or the City of Colorado Springs.

- (a) Discrepancies: If the Contractor, as the work progresses, finds any discrepancies between the Plans and physical conditions or any errors in the Plans or layout as given by the stakes or instructions, it shall be the Contractor's duty to inform the Engineer in writing and the Engineer shall address such discrepancy in a reasonable period of time. Any work done after such discovery until authorized will be done at the Contractor's risk.
- (b) Workmen, Methods and Equipment: Permission from the Engineer to use any particular methods, equipment or appliances shall not be so construed as to relieve the Contractor

from furnishing other equipment or appliances or adopting other methods when those in use prove unsatisfactory to the Engineer, or as to bind the Engineer to accept work which does not comply with the contract.

109.11 CONTRACTOR'S RESPONSIBILITY FOR WORK

Until the work is accepted by the Engineer as evidenced by the issuance of the Certificate of Completion, the Contractor shall have the charge and care thereof and shall take every necessary precaution against injury or damage to any part thereof by action of the elements or from any other cause, whether arising from the execution or from the non-execution of the work. The Contractor shall rebuild, repair, restore, and make good all injuries or damages to any portion of the work occasioned by any of the above causes before its completion and acceptance and shall bear the expense thereof.

The Contractor shall be responsible for the preservation of all public and private property, trees, fences, monuments, and other property, along and adjacent to the improvements and shall use suitable precautions necessary to prevent damage to pipes, conduits, and other underground structures. When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect or misconduct in the execution of the work, or in consequence of the non-execution thereof on the part of the Contractor, such property will be restored by the Contractor and at Contractor's expense to a condition similar, or equal to that existing before such damage or injury to the satisfaction of the City's Project Manager.

It shall be the responsibility of the Contractor, when moving or operating equipment, to make all arrangements for temporary crossings of telephone, transmission, pipe lines, railroad tracks, and irrigation ditches. This work shall not be paid for as a separate item but shall be considered as incidental to the project.

109.12 PROTECTION OF UTILITIES

The Contractor's attention is directed to the fact that utilities may encroach on the construction of this project, and also to the importance of protecting all public/private utilities encountered on this project. These may include telecommunications, cablevision, traffic signal lines, power lines, water lines, sewer lines, gas lines, railroad tracks, and other overhead and underground utilities.

The size and location of all existing utilities as known to the Engineer have been noted on the plans for the information and guidance of the Contractor. The Contractor shall be responsible for the location and protection of all utilities located within his working area regardless of whether or not their existence or location is shown or noted on the drawings.

It is the Contractor's responsibility to complete required work and to schedule inspections during normal working hours. The Contractor is responsible for contacting each affected utility for their inspectors' working hours. The Contractor is responsible to request an inspection two (2) working days in advance of the inspection. In the case of an overtime inspection, the request must be in writing. All overtime costs for inspection by City Utilities shall be the Contractor's expense. The City will not entertain any requests for time extensions for delays caused by the Contractor's failure to properly notify the affected utility of a required inspection or the Contractor's failure to complete the required work by the time of the scheduled inspection.

Any information concerning underground utilities shown on the drawings is intended to be merely an aid to the Contractor. The accuracy of information with respect to underground utilities is not guaranteed. The Contractor shall make their own investigation, including exploratory excavations, to determine the locations and type of existing mains or service laterals or appurtenances when their presence can be inferred from the presence of other visible facilities, such as building, manholes, inlets, meters and junction boxes, on or adjacent to the site of the work. If the Contractor discovers utility facilities not identified in the plans or specifications or in a position different from that shown in the plans and specifications, the Contractor shall immediately notify, verbally and in writing, the Engineer and Owner of the utility facility.

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Before any excavation is begun in the vicinity of water lines, railroad tracks, or structures, sewer lines, telecommunication conduits or cablevision line, each utility company, department, or company concerned must be notified in advance of such excavation, and such excavation shall not be made until an authorized representative of the utility concerned is at the site.

All utilities encountered must be kept in operation by the Contractor and must be protected and/or repaired at the Contractor's own expense, unless otherwise specified in the contract documents. The Contractor shall be held liable for all damages to any and all public utilities encountered on the project, which damages are due to the Contractor's operations. Such damages shall include all physical damages to utilities and also all damages due to interruption of service of such utilities, when such damages and interruptions are caused by the Contractor's operations.

Where alterations or moving of utilities is not required to permit construction of the project, the Contractor shall take such measures as the Engineer may direct to properly protect these utilities throughout his construction operations and shall cooperate at all times with the proper authorities and/or owners in maintaining service of railroads, conduits, pole lines, transmission lines, pipe lines, sewers, etc., affected by this project.

The costs of damages due to the Contractor's operation or the cost of protecting utilities where alteration or relocation is not required to permit construction of the project shall be included in the original contract price for the project.

Should any pipe line, water lines, or gas mains, electrical conduits, sewer pipes, overhead wiring, telecommunication lines, power lines, or any other such utilities, not specifically mentioned and provided for elsewhere as a part of this contract, have to be moved, repaired, reconditioned, or revised due to the construction, or moved temporarily to permit construction of the project the party or parties owning and operating such utilities shall perform the actual work of moving, repairing, reconditioning, or revising such utilities. The cost of this work shall be borne by the utility companies involved, unless other agreements are reached with the City.

(a) Existing Utilities

1. Existing Gas Lines: As of April 1, 1983, Federal law requires anyone who uncovers a gas line to report it to the gas company and allow it to be inspected by the gas company personnel before it is backfilled. The Gas Department is to be notified prior to any excavation around gas lines. A Gas Department inspector is to be notified and present on site prior to construction activities around gas lines.
2. Existing Sewer Mains and Services: All relocation, replacement protection shown on the plans or determined necessary by the inspector shall be performed according to the latest Wastewater Department Standard Specifications. Minimum 48 hours notice must be given to the Wastewater Department prior to any related work.
3. The Contractor shall adjust sanitary sewer manhole rims to an elevation acceptable to the City Wastewater Department. The Contractor shall contact the City Wastewater Department twenty-four (24) hours prior to manhole rim adjustments.
4. Existing Water Mains and Services: All relocation, replacement or protection shown on the plans or determined necessary by the inspector shall be performed according to the latest Water Department Standard Specifications and the Water Service Standard Specifications. Minimum 48-hour notice must be given to the Water Department prior to any related work. The Water Department reserves the right to schedule any operations at their discretion and to provide for any requirements determined necessary to perform the work. The Contractor shall coordinate with the Water Department and receive their approval prior to performance of the work.

(b) Utility Support Systems:

1. If required by the contract documents, or requested by the Engineer, the Contractor shall submit shop drawings for the method of temporary support for all existing

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utilities during construction. The temporary support details for existing utilities shall be submitted for review and approval prior to performance of the work. Shop drawings must bear the seal of a Professional Engineer registered in the State of Colorado, unless so waived by the City.

2. Regardless of City approved shop drawings, the Contractor shall be responsible for the satisfactory support of the utility system and any damages that may occur to the utility involved.
- (c) Electric Utility Installation:
1. Any electric facilities unless otherwise noted are to be relocated or modified by the City of Colorado Springs Electric Department. The Contractor shall coordinate the work with the Electric Department and the Electric Department's Contractor.
 2. Light Pole Installation or Relocation:
 - a. The Contractor is responsible for coordinating with CSU Electric, removing existing light pole foundations, constructing new light pole foundations, installing new conduits, and installing lighting junction boxes. The Contractor is responsible for coordinating with CSU Electric for the de-energizing and removal of existing light poles.
 - b. Colorado Springs Utilities (CSU) Electric Division will remove the existing light standards, reset the light standards upon completion of the new foundations, conduit and junction boxes, pulling wire, and beginning operations of the lighting within the project limits. The Contractor is responsible for scheduling and coordination with CSU crews for reinstallation and re-energizing completed light poles.
- (d) Gas Utilities: The Contractor is responsible for coordinating with CSU Gas for the relocation of existing Gas lines. Colorado Springs Utilities Gas Division will relocate the existing gas lines as necessary to install project improvements within the project limits. The Contractor is responsible for scheduling and coordination with CSU crews.
- (e) Telecommunication Agencies: Any telephone facilities unless otherwise noted are to be relocated or modified by the respective private utility company. The Contractor shall coordinate the work with the respective private utility company.
- (f) Cablevision: The television utilities are to be relocated by Cablevision. The Contractor shall coordinate the work with Cablevision.

109.13 LABOR

The Contractor shall employ only competent and skilled workmen and foremen in the conduct of work on this contract. The Contractor shall at all times enforce strict discipline and good order among Contractor's employees. The Engineer shall have the authority to order the removal from the work of any Contractor's employee who refuses or neglects to observe any of the provisions of these Plans or Specifications, or who is incompetent, abusive, threatening, or disorderly in conduct, and any such person shall not again be employed on the project.

Colorado labor shall be employed to perform the work to the extent of not less than eighty percent (80%) of each type or class of labor in the several classifications of skilled and common labor employed on this project, as required and defined in Section 8-17-107 C.R.S. 1973.

Eight (8) hours shall constitute a day's labor and Monday through Friday shall constitute a workweek. In no event shall the City be responsible for overtime pay.

109.14 EMPLOYMENT OF LABOR

The Contractor shall comply with, and protect and hold the City harmless from any violation of all laws and lawful rules and regulations, both of the State of Colorado and of the United States,

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relating to Workmen's Compensation, unemployment compensation, Social Security, payment for overtime, and all other expenses and conditions of employment under this contract.

109.15 EQUAL EMPLOYMENT OPPORTUNITY

During the performance of this contract, the Contractor agrees as follows:

- (a) The Contractor will not discriminate against any employee or applicant for employment because of race, religion, sex, color or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, religion, sex, color or national origin. Such actions shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training; including apprenticeship.
- (b) The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
- (c) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, religion, sex, color or national origin.

109.16 FEDERAL FUNDS

If this contract is a Federally assisted construction contract all applicable federal requirements, terms and conditions, provisions and forms will be included in the bidding documents. Additionally, the Contractor agrees as follows:

1. The Contractor shall complete and submit with its bid all federal forms and certifications included in the bidding documents.
2. The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding a notice advising the labor union or workers representative of the Contractor's commitments under Section 202 of Executive Order No. 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
3. The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
4. The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the Secretary of Labor, State of Colorado Civil Rights Commission and any other governmental agency entity which may be assisting with the funding under this contract for purposes of investigation to ascertain compliance with such rules, regulations and orders.
5. In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any such rules, regulations, or orders, this contract may be cancelled, terminated, or suspended in whole or in part, and the Contractor may be declared ineligible for further government contracts or Federally assisted construction contracts in accordance with the procedures authorized in Executive Order No. 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246 of September 24, 1965,

or by rule, regulation, or order of the Secretary of Labor, or otherwise provided by law.

6. The Contractor shall include the provisions of Paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order No. 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the city, state, or any federal governmental entity may direct as a means of enforcing such provisions, including sanctions for noncompliance. Provided, however, that in the event the Contractor becomes involved in, or threatened with, litigation with a subcontractor or vendor as a result of such direction by the city, state, or any federal governmental entity, the Contractor may request the city, the state, or the United States to enter into such litigations to protect the interests of such governmental entity.

109.17 SUPERINTENDENCE

The Contractor shall give the work the constant attention necessary to facilitate the progress thereof and shall cooperate with the Engineer and with other Contractors or utility company employees in every way possible. The Contractor shall have at all times, on the work, as Contractor's agent, a competent superintendent capable of reading and thoroughly understanding the Plans and Specifications, and who shall have the necessary authority to receive and promptly execute the instructions and orders from the Engineer or the Engineer's authorized representative. Such superintendent shall be furnished irrespective of the amount of work sublet. The Contractor shall supply the Engineer with a list of phone numbers at which the Contractor, his superintendent and foreman can be reached at any time. The assigned Superintendent must adhere to the cooperation requirements specified in Section 108.08 and is subject to removal if so ordered in writing by the Engineer/Project Manager.

109.18 PREPARATION

All vegetation, stumps, and debris and other objectionable objects shall be removed from the area staked out by the Engineer, and where necessary from the area immediately adjacent thereto. Such debris shall be hauled from the site of the construction and wasted as directed by the Engineer.

109.19 STAKING WORK

The Engineer shall provide reference points (horizontal and vertical control) only, unless otherwise noted in the bid proposal and project specifications. The Contractor shall engage the services of a licensed surveyor or surveying firm (hereinafter referred to as the Surveyor) to be approved by the Engineer. The Surveyor shall perform all detailed construction layout and staking including the staking of all storm sewer, street improvements, and utility relocations in accordance with the plans and specifications. The Contractor shall be responsible for the correctness and accuracy of the detailed layout of finished structures.

Any instrument man or survey assistant employed on the work by the Contractor or his Subcontractors who is judged by the Engineer to be incompetent shall be removed from the work and replaced by a competent individual.

109.20 DEVIATION ALLOWED

Finished surfaces in all cases shall conform to lines, grades, cross sections and dimensions shown on the approved drawings or described in the Specifications. Deviations from the approved drawings and working drawings as may be required by the expediencies of construction will, in all cases, be determined by the Engineer and authorized in writing. If the Engineer deems it inexpedient to correct work injured or done in an unauthorized manner, an equitable deduction from the contract price of the work done shall be made by the Engineer subject to approval of the City Engineer.

109.21 RIGHT-OF-WAY

The City's right-of-way will in general be adequate for construction purposes. Nothing marked on the drawings shall be interpreted as giving the Contractor exclusive occupancy of the territory provided by the City. The City and its employees for any purpose, and other contractors of the City, for any purpose required by their respective contracts, may enter upon or occupy portion of the land furnished by the City. When the territory of one contract is a necessary or convenient means of access for the execution of another contract, such privileges of access or any other reasonable privilege shall be granted by the Contractor to the extent, amount, in the manner and at times necessary. No such joint occupancy or use of the territory shall be made as the basis of any claim for delay or damages.

109.22 SHOP DRAWINGS AND SUBMITTALS

The Contractor shall submit to the Engineer all shop drawings, submittals and schedules required for the work, including those pertaining to structural and reinforcing steel within fifteen calendar days from the date of the Notice of Award. The Contractor shall make any corrections in the drawings required by the Engineer, and resubmit the same without delay.

Three final copies of all shop drawings, submittals and schedules shall be submitted to the Engineer, who after checking will retain two copies and return one copy to the Contractor. The Engineer's approval of shop drawings of equipment and material shall extend only to determining the conformity of such equipment and materials with the general features of the design drawings prepared by the Engineer. It shall be the responsibility of the Contractor to determine the correctness of all dimensions and minor details of such equipment and materials so that when incorporated in the work, correct operations will result.

109.23 RECORD DRAWINGS

The Contractor shall maintain an up-to-date set of contract documents, legibly marked, depicting all constructed improvements at the site or as otherwise specified and shall submit a complete set labeled "Project Record" to the Engineer upon completion of the project.

(a) Drawings:

1. Depths of various elements of foundation in relation to finish floor datum.
2. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements and project survey control.
3. Location of internal utilities and appurtenances concealed in the construction, referenced to permanent surface improvements and project survey control.
4. Field changes of dimensions and detail.
5. Changes made by Field Order or by Change Order.
6. Details not on original Contract Drawings.

(b) Specifications and Addenda:

1. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.
2. Changes made by Change Order.

109.24 MATERIALS

Unless otherwise stipulated in the Specifications, all workmanship, equipment, materials, and articles incorporated in the work covered by this contract are to be new and of the best grade of their respective kinds for the purpose. The Contractor shall furnish to the Engineer for the Engineer's approval, the name of the manufacturer of machinery, mechanical and other equipment, which he contemplates installing, together with their performance capacities and other pertinent information including but not limited to instruction manuals pertaining to the use and operation of such machinery, mechanical and other equipment.

When required by the Specifications, or when called for by the Engineer, the Contractor shall furnish for approval full information concerning the materials or articles which he contemplates incorporating in the work. Samples of materials shall be submitted for approval when so directed. Machinery, equipment, materials, and articles installed or used without such approval shall be at the risk of subsequent rejection.

109.25 MATERIAL INSPECTION AT PLANT

If the Engineer inspects the materials at the source, the following conditions shall be met:

- (a) The Engineer shall have the cooperation and assistance of the Contractor and the materials producer.
- (b) The Engineer shall have full entry to all parts of the plant necessary for the manufacture or production of the materials being furnished.
- (c) Adequate safety measures shall be provided and maintained.

The City reserves the right to retest all materials which have been previously tested or inspected. The retesting may be prior to or after incorporation of the materials into the work. Those materials inspected and tested after delivery on the project or after incorporation into the work that do not meet the requirements of the Contract will be rejected.

109.26 HANDLING MATERIALS

All materials shall be handled so their quality and fitness for the work is preserved. Aggregates shall be transported to the work in vehicles constructed to prevent loss or segregation of materials.

109.27 CITY FURNISHED MATERIALS

Material furnished by the Department will be made available to the Contractor at the points specified in the Contract.

The cost of handling and placing materials after they are made available to the Contractor shall be included in the contract price for the item.

The Contractor will be held responsible for all material received until it is incorporated into the work and accepted.

Demurrage charges resulting from the Contractor's failure to accept the material at the designated time and point of delivery will be deducted from monies due the Contractor.

109.28 BUY AMERICA REQUIREMENTS

All manufacturing processes, including the application of a coating, for all steel and iron products permanently incorporated in the work shall have occurred in the United States of America. All manufacturing processes are defined as "processes required to change the raw ore or scrap metal into the finished, in-place steel or iron product". This requirement will not prevent a minimal use of foreign steel or iron provided the total project delivered cost of all such steel and iron which includes the cost of delivering the steel and iron to the project, does not exceed one-tenth of one percent of the total contract cost or \$2,500, whichever is greater.

With every steel or iron product that requires pre-inspection, pretesting, certified test results, or certificate of compliance, the Contractor shall provide a certification by each supplier, distributor, fabricator, and manufacturer that has handled the steel or iron product that every process, including the application of a coating, performed on the steel or iron product either has or has not been carried out in the United States of America. These certifications shall create a chain of custody trail that includes every supplier, distributor, fabricator, and manufacturer that handles the steel or iron product. The lack of these certifications will be justification for rejection of the steel or iron product. Upon completion of the project, the Contractor shall certify in writing of compliance with this requirement and provide evidence of the project delivered cost of all foreign steel or iron permanently incorporated into the project.

109.29 TESTING OF MATERIALS

Tests and Inspections. The City will employ and pay for the services of an approved testing laboratory to perform specified services for the field testing of:

- (a) Soil Compaction Control
- (b) Cast-in-Place Concrete
- (c) Asphalt Concrete Pavement

The Contractor shall perform, or arrange for the performance, and pay all costs in connection therewith, all other tests and inspections required by the contract documents. The Contractor shall pay for all testing laboratory services in connection with tests verifying conformance of proposed materials and installation with project requirements including, but not limited to, mix designs, riprap, gradation tests for embedment, fill and backfill materials. The City shall pay for testing laboratory services in connection with tests on materials after incorporation into the project, unless retesting of materials is necessary because of the failure of the materials to meet the project requirements. The Contractor shall obtain the City's written acceptance of the testing laboratory before having services performed.

- (a) Requirements for Independent Testing Consultants.
 - 1. Comply with "Recommended Requirements for Independent Laboratory Qualifications", latest edition, published by the personnel, facilities, equipment and other qualification data, including; Report of inspection of facilities made by the American Council of Independent Laboratories, and basic requirements of ASTM E-329, "Standards of Recommended Practice for Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction", latest edition.
 - 2. Submit to the City for prior approval, the name and address of the proposed testing laboratory with description of personnel, facilities, equipment and other qualification data. Certificate of calibration of applicable testing equipment made by an accredited calibrated agency within 12 months prior to submittal date.
- (b) Test Reports
 - 1. Testing agency shall be instructed to submit directly to the City three (3) copies of all reports of tests or inspections made, showing compliance, irregularities or deficiencies, identifying project, date of test, location in project, applicable specification section, applicable standard(s) for compliance, observations relating to compliance, name and signature of inspector.
- (c) Contractor Responsibilities
 - 1. Furnish access to the work, materials, equipment and labor required to accommodate inspections and test when testing laboratory is retained by the City. In the event retesting of materials, or recompaction is necessary because of the failure of the materials or compaction to meet the project requirements, the cost of said retesting shall be borne by the Contractor. Cost of said retest will be deducted from the final payment amount due the Contractor, or invoiced directly to the Contractor at the City's discretion.

109.30 DIFFERING SITE CONDITIONS

The Contractor shall promptly, and before the conditions are disturbed, give a written notice to the Project Engineer/Manager of (1) subsurface or latent physical conditions at the site which differ materially from those indicated in this contract, or (2) unknown physical conditions at the site, of an unusual nature, which differ materially from those ordinarily encountered and generally recognized as inhering in work of the character provided for in this contract.

The Project Engineer/Manager shall promptly investigate the site conditions after receiving the notice. If the Engineer/Project Manager determines that conditions do materially differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performing any part

of the work under this contract, whether or not changed as a result of the conditions encountered, an equitable adjustment shall be made under this clause and the contract modified accordingly.

No request by the Contractor for an equitable adjustment to the contract shall be allowed, unless the Contractor has given the proper written notice and the Project Engineer/Manager determine the condition is in fact a Differing Site Condition; furthermore, the City of Colorado Springs shall not be liable for an equitable adjustment under this clause if the Contractor disturbed or repaired the condition without prior inspection by the Project Engineer/Manager, or if the contract is completed.

109.31 CHANGED CONDITIONS

When additional information regarding foundation or other conditions becomes available as a result of the excavation work, further testing, or otherwise, it may be found desirable and the City shall have the right to change the location, alignment, dimensions, or design of the work to meet such conditions.

During the progress of the work, the City may find it advisable, and it shall have the right to omit portions of the work and to increase or decrease any items as may be deemed necessary or desirable without changing the unit prices in the proposal, provided such increase or decrease does not exceed fifteen percent (15%) of the total monetary value of the original contract. If the material or labor involved in such a change is not included in the unit prices of the contract, but forms an inseparable part of the work to be done under this contract, and the delay involved in asking for the advertising for bids and the letting of a new contract therefore might result in damage, injury, or impairment of the plant, work system or other property belonging to the City, the City may, in its discretion, declare an emergency and require the Contractor to proceed with such alterations and additions. The Contractor will not, however, be required to perform such extra work and furnish such extra materials without a written Change Order from the Engineer. The parties hereto shall agree upon any sum to be paid for said work in advance of performing it. The Contractor shall make no claims for extra work unless the work was performed as authorized by a properly executed Change Order. Additional compensation or credit for work covered by a Change Order must be determined by one or a combination of the following methods:

- (a) Unit bid prices previously approved.
- (b) An agreed lump sum.
- (c) The actual cost of:
 - 1. Labor (including foremen and extra supervision if required).
 - 2. Materials entering permanently into the work.
 - 3. Rental cost of construction plant and equipment used for the work.
 - 4. Power and fuel required for the operation of power equipment used for change order work.
 - 5. The Contractor shall furnish a breakdown of cost including but not limited to bills, payrolls, invoices and vouchers covering the cost of the work. To this cost there shall be added a fixed fee to be agreed upon, but not to exceed fifteen percent (15%) of the cost of work. The fee shall be compensation to cover the cost of management, insurance, benefits, bond, profit and any other general expenses.
- (d) The cost of Subcontractor's work shall be determined according to methods 2 and 3, above, to which the Contractor may add a maximum of fifteen percent (15%), which amount shall be compensation for the cost of the Contractor's management, insurance, benefits, bond, profit, and any other general expenses.

109.32 CHANGES IN THE WORK

The City may make written changes in the Plans and Specifications or scheduling of the contract within the general scope of this contract at any time by a written order. If such changes add to or deduct from the Contractor's cost of the work, the contract prices shall be adjusted accordingly. All such work shall be executed under the conditions of the original contract except that any claim

for an extension of time caused thereby shall be allowed and adjusted at the time of ordering such change or at such time as it can be ascertained.

In giving instructions, the Project Engineer shall have authority to make minor changes in the work not involving additional cost, and not inconsistent with the purpose and scope of the work.

No claim for additional work or change shall be made unless so ordered by a properly executed Change Order, and no claim for an addition to the contract sum shall be valid unless the additional work or change was so ordered by a properly executed change order.

The Contractor shall proceed with the work as changed and the value of any additional work or change shall be determined as provided for in the Contract.

It shall be expressly understood and agreed to by the Contractor that no claim for additional work or money will be recognized by the City unless same has been so ordered by a properly executed Change Order.

109.33 PROTESTS

If the Contractor considers any work demanded of him to be outside the requirements of the contract, or considers any decision, record or ruling of the Project Engineer, the inspectors, or Project Manager to be unfair, he shall upon such work being demanded or such decision, record or ruling being made, proceed without delay to perform the work or to conform to the decision, record or ruling, and, within five (5) days of receiving said decision, record or ruling request that such decision, record or ruling be provided in writing, if not already provided. The Contractor shall then within ten (10) days after receipt of the written instructions or decisions, file a written formal protest with the Project Engineer, stating clearly and in detail the basis of his objection. Except for such protests or objections as are made of record in the manner herein specified and within the limit stated, the written records, rulings, instructions, or decisions of the Project Engineer shall be final and conclusive. Instructions and decisions of the Project Engineer contained in letters transmitting drawings to the Contractor shall be considered as written instructions or decisions subject to protest or objections as herein provided. In the event of a formal protest, the formal protest shall be presented to the City Engineer and the City Contracting Manager; their decision shall be considered final and conclusive for the City of Colorado Springs. Nothing in this section precludes a Contractor from pursuing any other remedies afforded by the laws of the State of Colorado once the remedies afforded under this contract have been complied with and exhausted.

Subcontractors shall follow the above instructions with the exception that the protest is filed with the General Contractor and a copy of the protest immediately copied to the City Project Manager/Engineer.

109.34 REMOVAL AND SUSPENSION FOR DEFECTIVE WORK

All work or material which has been rejected shall be remedied or removed and replaced in an acceptable manner. Additional compensation will not be allowed for such removal and replacement. Any work done beyond the lines and grades shown on the drawings, except as herein provided, will be considered as unauthorized and will not be measured or paid for. Work so done may be ordered removed at the Contractor's expense. Should the Contractor fail to comply promptly with any order of the Engineer made under the provisions of this paragraph, the Engineer shall have the authority to cause said work to be removed and to deduct the cost from any money due, or to become due, from the Contractor. At any time during the course of construction of this project if the provisions of the Plans, Specifications, or contract provisions are being violated by the Contractor or his employees, the Engineer shall have the right and authority to order all construction to cease or material to be removed, until arrangements satisfactory to the Engineer are made by the Contractor for resumption of the work in compliance with the provisions of the contract.

109.35 CLEANING UP AND FINAL INSPECTION

The Contractor shall at the completion of the work, remove all rubbish from and about the work and all tools, equipment, scaffolding, and surplus materials and shall leave the work clean and ready for use. In case of dispute, the City may remove the rubbish and surplus materials and charge the cost to the Contractor.

All sewers, conduits, pipes, and appurtenances and all tanks, pump wells, chambers, buildings, and other structures shall be kept clean during construction and as the work or any part thereof approaches completion, the Contractor shall systematically and thoroughly clean and make any needed repairs to them. Contractor shall furnish at Contractor's own expense, suitable tools and labor for removing all water and cleaning out all dirt, mortar, and foreign substances. Any undue leakage of water into the structures such as to make the work, in the opinion of the Engineer, fall short of first class work, shall be promptly corrected by the Contractor at Contractor's own expense.

Cleaning and repairs shall be arranged, so far as practicable, to be completed upon finishing the construction work. Notice to begin the final cleaning, and repairing, if such is needed, will be given by the Engineer, who at the same time will make his final inspection of the work. The Engineer will not approve the final estimate of any portion of the work until after the final inspection is made and the work found satisfactory.

109.36 CUTTING AND PATCHING

The Contractor shall do all cutting, fitting, or patching of work that may be required to make its several parts fit together or to receive the work of other contractors shown upon, or reasonably implied by the Plans and Specifications for the completed project.

Cold or wet weather conditions that do not permit a permanent asphalt pavement replacement will require a minimum 2" bituminous pavement patch prior to opening the area to traffic as a temporary measure until the permanent asphalt pavement replacement can be installed. This item shall be incidental to any work requiring such removal or asphalt and will be considered to be included in the unit price of the related item of work.

Any cost caused by defective or ill timed work shall be borne by the Contractor.

The Contractor shall not endanger any work by cutting, digging, or otherwise and shall not cut or alter the work of any other contractor without the consent of the Engineer.

109.37 FINAL TESTS

After completion of the work, the Contractor shall make any and all tests required by the Specifications or by Municipal, State or Federal regulations, and where so provided in said regulations shall furnish the City with certificates of inspection by the Municipal, State or Federal regulation bodies. The Contractor shall also make all tests required by the National Board of Fire Underwriters for the purpose of determining insurance rates or other protection of the City or the public.

109.38 CORRECTION OF WORK AFTER FINAL PAYMENT

Neither the final payment nor any provision in the contract documents shall relieve the Contractor of the responsibility for negligence or faulty materials or workmanship within the extent and periods provided by law and by this contract.

109.39 PERSONAL LIABILITY OF PUBLIC EMPLOYEES

The Engineer or authorized representatives are acting solely as agents and representatives of the City when carrying out and exercising the power or authority granted to them under the Contract. There shall not be any liability on them either personally or as employees of the City.

109.40 NO WAIVER OF LEGAL RIGHTS

Upon written notice that the Contractor considers all work complete, the Engineer shall make a pre-final inspection with the Contractor and shall notify the Contractor in writing of incomplete or defective work revealed by the inspection. The Contractor shall promptly remedy such deficiencies.

After the Contractor has remedied all deficiencies to the satisfaction of the Engineer and delivered all construction records including record drawings, maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection and other documents (all as required by the Contract Documents), the Contractor shall be promptly issued a Certificate of Completion by the Engineer stating that the work is acceptable.

Upon completion of the contract, the City will make final inspection and notify the Contractor of acceptance. Final acceptance shall not preclude the City from correcting any measurement, estimate, or certificate made before or after completion of the Contract, nor from recovering from the contractor or surety, or both, overpayments sustained because the Contractor failed to fulfill the obligations under the contract. A waiver on the part of the City of Colorado Springs any breach of any part of the Contract shall not be held to be a waiver of any other breach.

The contractor without prejudice to the terms of the Contract shall be liable to the City, for latent defects, fraud, or such gross mistakes, as may amount to fraud, or as regards the City's rights under any warranty or guarantee.

For all non-federally funded projects, the following additional requirements shall apply:

- (a) All work shall be constructed in compliance with standard construction codes, and all materials and workmanship must be guaranteed for a period of two years from the date of final acceptance. The Contractor guarantee period (two-year warranty period) will not begin until the contract is 100 percent complete, as determined by the Engineer. Acceptance of the 100 percent complete contract shall be requested in writing by the Contractor. Any item requiring repair and/or replacement prior to expiration of the two-year warranty period shall be guaranteed for a period of one-year after the date of said correction or repair or for the remainder of the two-year warranty period, whichever is longer.
- (b) In placing orders for equipment, the Contractor shall purchase same only under a written guarantee from the respective manufacturers that the equipment supplied will function satisfactorily as an integral part of the completed project in accordance with the Plans and Specifications. Furthermore, the Contractor shall require that the manufacturer agree in writing at the time order of equipment is placed that manufacturer will be responsible for the proper functioning of the equipment in cooperation with the Contractor, and that whenever necessary during the installation period or tuning up period following construction period, the manufacturer will supply without additional cost to the City, such superintendence and mechanical labor and any adjustments and additional parts and labor needed to make the equipment function satisfactorily, even if the same was not shown on approved shop drawings.

109.41 ACCEPTANCE

- (a) *Partial Acceptance.* If, during the prosecution of the project, the Contractor satisfactorily completes a unit or portion of the project, such as a structure, an interchange, or a section of road or pavement that can be used advantageously for traffic, the Engineer may make final inspection of that unit. If the Engineer finds that the unit has been satisfactorily completed in compliance with the Contract, the Contractor may be relieved of further responsibility for that unit except as otherwise provided in these general provisions. Partial acceptance shall not void or alter any of the terms of the Contract.

- (b) *Final Acceptance*. Upon notice from the Contractor of presumptive completion of the entire project, the Engineer will make an inspection. If the work provided for by the Contract has been satisfactorily completed, that inspection shall constitute the final inspection and the Engineer will notify the Contractor in writing of final acceptance indicating the date on which the project was inspected and accepted.

If the inspection discloses any unsatisfactory work, the Engineer will give the Contractor a written list of the work needing correction. Upon correction of the work, another inspection will be made. If the work has been satisfactorily completed, the Engineer will notify the Contractor in writing of the date of final inspection and acceptance. Final acceptance under this subsection does not waive any legal rights contained in subsection 109.40.

SECTION 110 PAYMENTS AND ACCEPTANCE OF WORK

110.00 PAYMENTS AND RETAINAGE

Payments will be made, and required retainage withheld if applicable, in accordance with this section as the work progresses at the end of each month or as soon thereafter as practicable in compliance with Title 24, Article 91, Section 103 and Section 110, Colorado Revised Statutes, on statements made and approved by the Engineer. In preparing statements, only completed work will be taken into consideration. No payment will be made for materials in storage and/or delivered to the site, unless otherwise approved by the City.

Payment for work performed by the contractor under these contract documents will be made at the approved unit price or lump sum price for each of the several items as listed in the bid and measured as hereinafter specified. Such payment shall compensate the Contractor for all costs in connection with furnishing all labor, equipment and material required and performing the operations necessary to complete the item in accordance with the contract documents. All incidental work essential to the completion of the project in a workmanlike manner, and including cleanup and disposal of waste or surplus material, shall be accomplished by the contractor without additional cost to the City. The cleanup and disposal of waste or surplus material shall be performed during construction or as soon after as is reasonably possible in order to better maintain the aesthetics and safety of the construction area. The quantities listed in the bid are estimated quantities, and are listed only for convenience in comparing bids. Payment will be made for the actual quantities constructed or installed, unless otherwise noted in these Contract Documents. However, any changes to plan quantity must be approved through proper change order procedures, said quantities being measured as specified in the Contract Documents.

- (1) If the contract exceeds ONE HUNDRED FIFTY THOUSAND DOLLARS (\$150,000.00), and is for the construction, alteration, or repair of any highway, public work, or public improvement, structure, and; the contractor has provided Performance, and Payment Bonds: the City of Colorado Springs shall authorize partial progress payments of the amount due under this contract monthly, or as soon thereafter as practicable, to the contractor, if the contractor is satisfactorily performing the contract. If the City of Colorado Springs finds that satisfactory progress is being achieved during any period for which progress is to be made, the City of Colorado Springs may authorize payment to be made in full without withholding retainage. However, if satisfactory progress has not been made, the City of Colorado Springs may retain a maximum of ten percent (10%) of the amount of the requested payment until satisfactory progress is achieved. When the work is substantially complete, the City of Colorado Springs may retain from the remaining unpaid balance that amount the City Contracting Manager, at the advice of the City's project manager, considers adequate for protection of the City, suppliers and subcontractors, and shall release to the Contractor all the remaining funds associated with completed and acceptable work.

The withheld percentage of the contract price of any such work, improvement, or construction shall be retained on an invoice-to-invoice basis and shall not be cumulative. In other words, if the contractor is not performing satisfactorily the City of Colorado Springs will hold ten percent (10%) of what is actually due to the contractor. For example, if the contractor is behind schedule and has successfully completed fifty percent (50%) of the work, the City of Colorado Springs will only pay forty percent (40%) of the invoice, withholding ten percent (10%) of what is due until the contractor gets back on schedule. Once the City of Colorado Springs determines that satisfactory progress is being made in all phases of the contract, then no retainage will be held on successfully completed work.

- (2) Whenever a contractor receives payment pursuant to this section, the contractor shall make payments to each of the subcontractors of any amount actually received which were included in the contractor's request for payment to the City for such subcontracts. The contractor shall make such payments within seven (7) calendar days of receipt of payments from the City in the same manner as the City is required to pay the contractor under this section if the subcontractor is satisfactorily performing under the contract with the contractor. The subcontractor shall pay all suppliers, sub-subcontractors, laborers, and any other persons who provide goods, materials, labor, or equipment to the subcontractor any amounts actually received which were included in the subcontractor's request for payment to the contractor for such persons, in the same manner set forth in this subsection (2) regarding payments by the contractor to the subcontractor. If the subcontractor fails to make such payments in the required manner, the subcontractor shall pay those suppliers, sub-subcontractors, and laborers interest in the same manner set forth in this subsection (2) regarding payments by the contractor to the subcontractor.

At the time a subcontractor submits a request for payment to the contractor, the subcontractor shall also submit to the contractor a list of the subcontractor's suppliers, sub-subcontractors and laborers. The contractor shall be relieved of the requirements of this subsection (2) regarding payment in seven (7) days and interest payment until the subcontractor submits such list. If the contractor fails to make timely payments to the subcontractor as required by this section, the contractor shall pay the subcontractor interest as specified by contract or at the rate of fifteen percent (15%) per annum, whichever is higher, on the amount of the payment which was not made in a timely manner. The interest shall accrue for the period from the required payment date to the date on which payment is made. Nothing in this subsection (2) shall be construed to affect the retention provisions of any contract.

- (3) **CONTRACTS UNDER ONE HUNDRED FIFTY THOUSAND DOLLARS:**
If the contractor is not progressing in accordance with the project schedule or not performing quality work in accordance with the specifications, the Project Manager may, at that point start withholding retainage up to and including ten percent (10%) of the total contract amount.

110.01 CORRECTION OF WORK BEFORE FINAL PAYMENT

The Contractor shall promptly remove from the premises all materials and work condemned by the Engineer as failing to meet contract requirements, whether incorporated in the work or not, and the Contractor shall promptly replace and re-execute Contractor's own work in accordance with the contract and without expense to the City and shall bear the expense of making good all work of other contractors destroyed or damaged by such removal or replacement.

All removal and replacement work shall be done at the Contractor's expense. If the Contractor does not take action to remove such condemned work and materials within ten (10) days time thereafter, the City may, upon ten (10) days written notice, sell such materials at auction or at private sale and retain the proceeds without compensation to the Contractor.

110.02 PAYMENTS WITHHELD PRIOR TO FINAL ACCEPTANCE OF WORK

The City may withhold or nullify the whole or part of any certificate of payment to such extent as may be necessary to protect it from loss caused by:

- (a) Defective work not remedied.
- (b) Claims filed or reasonable evidence indicating probable filing of claims by other parties against the Contractor.
- (c) Failure of the Contractor to make payments properly to subcontractors or for material or labor.
- (d) Damage to another contractor.

When the above grounds are removed, payment shall be made for amounts withheld because of them.

110.03 ACCEPTANCE OF FINAL PAYMENT

Upon notice that the work is fully completed, the Engineer will make a final inspection. If the Engineer finds the work acceptable under the contract and the contract is fully performed, the work may be finally accepted by the Engineer under the terms and conditions of the contract. The entire balance found by the Engineer to be due the Contractor, including the retained percentage, less any retention based on; (1) the Engineer's estimate of the fair value of the claims against the Contractor; and (2) the cost of completing the incomplete or unsatisfactory items of work with specified amounts for each incomplete or defective item of work; and (3) retentions required by law, shall be due and payable to the Contractor. The date of completion is the date as specified in the Certificate of Completion issued by the Engineer.

Upon completion of the work under the contract and before the Contractor shall receive or be paid for the Engineer's final statement, the City Contracts Office shall post a notice on the website www.coloradosprings.gov/contracting that the City has accepted such work as completed according to the Plans and Specifications and rules set forth in the contract; that the Contractor is entitled to final settlement; that after the date specified in the Notice, the City will pay the full balance due under the contract; and that persons having claims for labor or material furnished the Contractor must present their claim to the City Contracts Office prior to the date specified for such payment. Nothing herein shall be construed as relieving the Contractor and the sureties on the Contractor's bonds from any claim or claims for work or labor done or materials or supplies furnished in the execution of the contract.

The making and acceptance of the final payment shall constitute a waiver of all claims by the Contractor against the City.

If, after the work has been substantially completed, full completion thereof is materially delayed through no fault of the Contractor, and the Engineer so certifies, the City may, upon Certificate of Completion by the Engineer, and without terminating the contract, make payment of the balance due for that portion of the work fully completed and accepted. Such payment shall be made under the terms and conditions governing final payment and acceptance of the project shall constitute a waiver of all claims by the Contractor but acceptance shall not constitute a waiver of City claims against the Contractor.

Advertising for Final Payment and processing of the Final Pay Request shall not take place until after the Contractor has submitted Sales and Use Tax Forms to the City of Colorado Springs and said forms have been reviewed and approved by the City Sales Tax Office.

SECTION 111 TERMINATION OF CONTRACT

111.00 THE CITY'S RIGHT TO TERMINATE CONTRACT

In accordance with the City Charter, performance of the City's obligations under this contract is expressly subject to appropriation of funds by the City Council. Further, in the event that funds are not appropriated in whole or in part sufficient for performance of the City's obligations under this contract, or appropriated funds may not be expended due to City Charter spending limitations, then the City may terminate this contract without compensation to the Contractor.

If the termination is for failure of the contractor to fulfill the contract obligations, the City may terminate the subject contract for Default, and complete the work by contract or otherwise, and the contractor shall be liable for any additional cost incurred by the City. Prior to issuing a Termination for Default, the City will issue a Notice to Cure allowing the contractor a minimum of ten (10) calendar days to prepare a plan to correct whatever failures are causing the contract obligation failure(s). The City will have the right to accept the plan of correction or to continue with the Termination for Default.

Where the contract has been terminated for Default by the City, said termination shall not affect or terminate any of the rights of the City as against the Contractor or his surety then existing or which may thereafter accrue because of such default. Any retention or payment of monies by the City due the Contractor under the terms of the contract shall not release the Contractor or the Contractor's surety from liability for the Contractor's default.

If the Contractor should become bankrupt and a relief from stay is granted to the City, or if the Contractor should make a general assignment for the benefit of Contractor's creditors, or if a receiver should be appointed on account of Contractor insolvency, or if Contractor should persistently or repeatedly refuse or should fail, except in cases for which extensions of time are provided, to supply enough properly skilled workmen or materials, or if Contractor should fail to make payments to subcontractors or for material or labor so as to affect the progress of the work, or breach, or substantially violate any provision of the contract, then the City, upon the written notice of the Engineer may, without prejudice to any other right or remedy, terminate the contract for default and take possession of the premises and of all materials, tools, equipment, and other facilities installed on the work and paid for by the City, and finish the work by whatever method the City may deem expedient. In such cases, the Contractor shall not be entitled to receive any further payment under the contract.

The City may also terminate this contract for convenience of the City, upon written notice to the Contractor, without additional compensation to the Contractor, unless the Contractor has started or performed portions of the contract prior to receiving such notice. If performance of the contract is underway, the City will be liable only for the portions of work actually satisfactorily completed up to the point of the issuance of the Notice of Termination for Convenience. In no event shall the City be liable for unperformed work or anticipated profits or overhead. Upon receipt of this notice the Contractor shall immediately: discontinue all services affected (unless the notice directs otherwise), and deliver to the City all data, drawings, specifications, reports, estimates, summaries, and other information and materials accumulated in performing this contract, whether completed or in process.

111.01 COMPLETION OF CONTRACTS IN DEFAULT

If for any reason a contract is declared in default, the City shall have the right without process or action at law to take over all or any portion of the work and complete it in any manner the City deems most appropriate. Written notice shall be given the Contractor by the City that the contract has been declared in default, and upon receiving such notice, the Contractor shall peaceably relinquish possession of the said work or the parts thereof specified in the notice.

CITY OF COLORADO SPRINGS

The City may, at its option and at a rental which it considers reasonable, retain all material, equipment, and tools on the work until the work has been completed.

Neither the City nor any officer, agent or employee of the City shall be in any way liable or accountable to the Contractor or the Contractor's surety for the method by which the completion of the said work, or any portion thereof, may be accomplished or for the price paid. Should the cost of completing the work be in excess of the original contract price, the Contractor and Contractor's surety shall be responsible for such excess cost. Should the cost of such completion, including all proper charges, be less than the original contract price, the amount so saved shall accrue to the City. Neither by taking over the work nor by declaring the contract in default shall the City forfeit the right to recover damages from the Contractor or Contractor's surety for failure to complete the entire contract.

111.02 REMOVAL OF EQUIPMENT

Except as provided in subsection 111.01 above, in the case of termination of this contract before completion from any cause whatever, the Contractor, if notified to do so by the City, shall promptly remove any part or all of Contractor's equipment and supplies from the property of the City, failing which the City shall have the right to remove such equipment and supplies at the expense of the Contractor.

SCHEDULE E

E.1 TECHNICAL SPECIFICATIONS

The Standard Specifications for this project shall be the **latest version** of the “**CITY OF COLORADO SPRINGS ENGINEERING DIVISIONS STANDARD SPECIFICATIONS**”, (revised Feb. 1995, General Provisions revised January 2008 and Sections 400, 410 and 420 Revised January 2007), except as modified hereinafter, which are incorporated in the contract documents by reference as though embodied herein in their entirety.

All Contractors on this project are required to have on the job site and utilize the current updated copy of the City of Colorado Springs Engineering Divisions Standard Specifications.

Copies are available for purchase at the cost of \$25.00 from the City of Colorado Springs, City Engineering Division, Suite 403, 30 South Nevada Avenue, Colorado Springs, during regular business hours.

E.2 APPLICABLE SPECIFICATIONS

02230 SITE CLEARING (REVISED 2005)

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Examination of the site.
2. Marshalling and access.
3. Protecting existing trees and vegetation to remain.
4. Removing trees and other vegetation.
5. Clearing and grubbing.
6. Topsoil stripping.
7. Removing above-grade site improvements.
8. Disconnecting, capping or sealing, and abandoning site utilities in place.
9. Disconnecting, capping or sealing, and removing site utilities.

B. Related Sections include the following:

1. Division 1 Section “Field Engineering” for verifying utility locations and for recording field measurements.
2. Division 1 Section “Construction Facilities and Temporary Controls” for temporary utilities, temporary construction and support facilities, temporary security and protection facilities and environmental protection measures during site operations.
3. Division 2 Section “Tree Protection and Trimming” for protecting trees remaining on-site that are affected by site operations.
4. Division 2 Section “Earthwork” for soil materials, excavating, backfilling, and site grading.
5. Division 2 Section “Landscaping” for finish grading, including placing and preparing topsoil for lawns and planting.

1.3 DEFINITIONS

A. Topsoil: Natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than ¾ inches in diameter; and free of weeds, roots and other deleterious materials.

1.4 MATERIALS OWNERSHIP

- A. Except for materials to be stockpiled or to remain Owner's property, cleared materials shall become Contractor's property and shall be removed from the site.

1.5 SUBMITTALS

- A. Photographs or videotape, sufficiently detailed, of existing conditions of trees and plantings, adjoining construction, and site improvements that might be misconstrued as damage caused by site clearing.
- B. Record drawings according to Division 1 Section "Contract Close-out."
 - 1. Identify and accurately locate capped utilities and other subsurface structural, electrical, and mechanical conditions.
- C. An approved traffic control plan and all environmental permits as required by local and state agencies.

1.6 QUALITY ASSURANCE

- A. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Meetings."

1.7 PROJECT CONDITIONS

- A. The Contractor shall visit, inspect and thoroughly become familiar with the site and the scope of work. The Contractor will judge conditions that will exist when carrying out the contract. The Contractor shall meet with the Owner's Representative to determine the point of access and marshaling area to be utilized to perform this work. No gasoline, oil concrete or other material shall be dumped anywhere on site.
- B. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
 - 2. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.
 - 3. When working in the City Right of Way, submit an approved traffic control plan to Owner's Representative.
- C. Improvements on Adjoining Property: Authority for performing indicated removal and alteration work on property adjoining Owner's property will be obtained by owner before award of Contract.
- D. Salvable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated.
- E. Notify utility locator service for area where Project is located before site clearing.

PART 2-PRODUCTS

2.1 SOIL MATERIALS

- A. Satisfactory Soil Materials: Requirements for satisfactory soil materials are specified in Division 2 Section "Earthwork."
 - 1. Obtain approved borrow soil materials off-site when satisfactory soil materials are not available on-site.

PART 3-EXECUTION

3.1 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
- B. Submit a storm water control plan and fugitive dust permit as required by local and state agencies.
- C. Provide erosion-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

- D. Locate and clearly flag trees and vegetation to remain or to be relocated.
- E. Refer to City of Colorado Springs stormwater management manual.
- F. Protect existing site improvements both in and outside of construction zone.
 - 1. Restore damaged improvements both on and off the site to their original condition, as acceptable to Owner.

3.2 TREE PROTECTION

- A. Erect and maintain a temporary fence around drip line of individual trees or around perimeter drip line of groups of trees to remain. Remove fence when construction is complete.
 - 1. Do not store construction materials, debris, or excavated material within drip line of remaining trees.
 - 2. Do not permit vehicles, equipment, or foot traffic within drip line of remaining trees.
- B. Do not excavate within drip line of trees, unless otherwise indicated.
- C. Refer to the related plans as indicated, and/or consult with the City Forester or the Designee assigned to the project.
- D. Furnish all labor, material, tools, land equipment necessary to complete the work indicated on drawings and as required herein.
- E. Existing trees to remain shall be protected at all times during the Contract period, by using fencing (i.e., snow fencing, or chain link fencing with metal staking). Tree protection fencing shall be maintained by the Contractor during construction. The Protection area to be fenced (2') outside the dripline of the tree unless otherwise required by the Owner's Representative. No equipment shall be parked, driven or material stockpiled within the dripline area of the existing trees to remain. No gasoline, oil, chemicals, concrete or other material shall be dumped anywhere on site. Where vehicle or equipment traffic if necessary in the protection area of a tree, the soil shall be protected from compaction by (6"-10") layer of wood chip mulch.
- F. Any trees damaged during construction shall be promptly reported to the Owner's Representative, who shall contact the City Forester or the Designee for an assessment of damages. The contractor will be responsible for repair or replacement to the satisfaction of the City Forester or the Designee.
- G. Tree roots are to be clean cut when necessary using proper equipment, i.e. loppers or concrete saw. The Contractor shall submit with the Bid the cost to implement proper boring under roots.
- H. The City Forester or the Designee will be informed of all construction projects, especially when trees are involved.
- I. The City Forester or the Designee will survey the site to set and determine what the contractor needs to do before construction begins. The Contractor shall set up tree protection devices.
- J. The City Forester or the Designee shall be informed of:
 - 1. Soil grade changes adjacent to trees.
 - 2. Probable trenching through roots.
 - 3. Location of stored heavy equipment.
 - 4. Paths heavy equipment will take during construction project, to avoid root compaction and root breakage.
- K. The City Forester or the Designee shall be notified during the project design phase, to aid in tree protection during the primary phase.
 - 1. When equipment must be used in close proximity of the trunk, the entire tree trunk shall be protected by banding large 2"x4" wooden boards to avoid direct contact. The soil shall be protected from compaction with a 6-10" layer of wood chip mulch.
 - 2. The Forestry Division will conduct all pruning if limb elevation is needed to avoid equipment contact.
- L. Where excavation for new construction is required within drip line of trees, hand clear and excavate to minimize damage to root systems. Use narrow-tine spading forks, comb soil to expose roots, and cleanly cut roots as close to excavation as possible.
 - 1. Cover exposed roots with burlap and water regularly.
 - 2. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.

3. Cover exposed roots with wet burlap to prevent roots from drying out. Backfill with soil as soon as possible.
- M. Repair or replace trees and vegetation indicated to remain that are damaged by construction operations, in a manner approved by Architect.
 1. Employ a qualified arborist, as approved by the City Forester or the Designee, to submit details of proposed repairs and to repair damage to trees and shrubs.
 2. The Contractor will replace trees that cannot be repaired and restored to full-growth status, as determined by the qualified arborist and the City Forester or the Designee

3.3 UTILITIES

- A. Contractor will coordinate for disconnecting and sealing indicated utilities that serve existing structures before site clearing with Owner's Representative.
 1. Verify that utilities have been disconnected and capped before proceeding with site clearing.
- B. Locate, identify, disconnect, and seal or cap off utilities indicated to be removed.
 1. Owner will arrange to shut off indicated utilities when requested by Contractor.
 2. Arrange to shut off indicated utilities with utility companies.
- C. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or other unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 1. Notify Owner's Representative not less than two days in advance of proposed utility interruptions.
 2. Do not proceed with utility interruptions without Owner's Representative written permission.
- D. Excavate for and remove underground utilities indicated to be removed.

3.4 CLEARING AND GRUBBING

- A. Remove obstructions, trees, shrubs, grass, and other vegetation to permit installation of new construction. Removal includes digging out stumps and obstructions and grubbing roots.
 1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
 2. Cut minor roots and branches of trees indicated to remain in a clean and careful manner where such roots and branches obstruct installation of new construction.
 3. Completely remove stumps, roots, obstructions, and debris extending to a depth of 18 inches below exposed subgrade.
 4. Use only hand methods for grubbing within drip line of remaining trees.
- B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material, unless further excavation or earthwork is indicated.
 1. Place fill material in horizontal layers not exceeding 8-inch loose depth, and compact each layer to a density equal to adjacent original ground.

3.5 TOPSOIL STRIPPING

- A. Remove sod and grass before stripping topsoil.
- B. Strip topsoil to whatever depths are encountered in a manner to prevent intermingling with underlying subsoil or other waste materials.
 1. Strip surface soil of unsuitable topsoil, including trash, debris, weeds, roots, and other waste materials.
- C. Stockpile topsoil materials away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Comply with fugitive dust permit.
 1. Do not stockpile topsoil within drip line of remaining trees.
 2. Dispose of excess topsoil as specified for waste material disposal.

3.6 SITE IMPROVEMENTS

- A. Remove existing above- and below-grade improvements as indicated and as necessary to facilitate new construction.

- B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.
 - 1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut length of existing pavement to remain before removing existing pavement. Saw-cut faces vertically.

3.7 DISPOSAL

- A. Disposal: Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials, including trash and debris, and legally dispose of them off Owner's property.

END OF SECTION 02230 SITE CLEARING (REVISED 2005)

02231-TREE PROTECTION AND PRUNING (REVISED 2005)

PART 1-GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the protection and pruning of trees that interfere with, or are affected by, execution of the Work, whether temporary or new construction.
- B. Related Sections include the following:
 - 1. Division 1 Section "Summary of Work" for limits placed on Contractor's use of the site.
 - 2. Division 1 Section "Construction Facilities and temporary Controls" for temporary tree protection.
 - 3. Division 2 Section "Site Clearing" for removal limits of trees, shrubs, and other plantings affected by new construction.
 - 4. Division 2 Section "Landscaping: for tree and shrub planting and transplanting, tree support systems, and soil materials.
- C. The Contractor shall visit, inspect and become thoroughly familiar with the site and the scope of work. The Contractor will judge the conditions that will exist when he carries out his contract.
- D. The Contractor shall meet with the Owner's Representative to determine the point of access and marshaling area to be utilized to perform this work.
- E. Refer to the related guidelines as indicated, and/or consult with the City Forester or the Designee assigned to the project.
- F. Furnish all labor, materials, tools, and equipment necessary to complete the work indicated on drawings and as required herein. This shall include:
 - 1. Proper root cutting.
 - 2. Erecting the required fencing when needed.
 - 3. Installing the correct and necessary tree barrier devices.
 - 4. Protecting the soil around trees from compaction.
- G. The City Forester or the designee will be informed of all construction projects, especially when trees are involved.
- H. The City Forester or the designee will survey the site to set up tree protection devices and determine what the Contractor needs to do, before construction begins.
- I. The City Forester or the designee shall be informed of:
 - 1. Soil grade changes adjacent to trees.
 - 2. Probable trenching through roots.
 - 3. Location of stored heavy equipment.
- J. Paths heavy equipment will take during construction project, to avoid root compaction and root breakage.
- K. The City Forester shall be notified during the project design phase, to aid in tree protection during the primary phase.

- L. When equipment must be used in close proximity of the trunk, the entire tree trunk shall be protected by banding large 2"x4" wooden boards to avoid direct contact. The soil shall be protected from compaction with a 6-10" layer of wood chip mulch.

1.3 SUBMITTALS

- A. Maintenance Recommendations: From a qualified arborist for care and protection of trees affected by construction during and after completing the Work.

1.4 QUALITY ASSURANCE

- A. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Meetings."

- 1. Before starting tree protection and pruning, meet with representatives of authorities having jurisdiction, Owner, Architect, consultants, and other concerned entities. Review tree protection and pruning procedures and responsibilities. Notify participants at least three working days before convening conference. Record discussions and agreements and furnish a copy to each participant.

PART 2-PRODUCTS

2.1 MATERIALS

- A. Drainage Fill: Selected crushed stone, or crushed or uncrushed gravel, washed, ASTM D 448, Size 24, with 90 to 100 percent passing a 2-1/2-inch sieve and not more than 10 percent passing a 3/4-inch sieve.
- B. Topsoil: Fertile, friable, surface soil, containing natural loam and complying with ASTM D 5268. Provide topsoil, that is free of stones larger than 1 inch in any dimension and free of other extraneous or toxic matter harmful to plant growth. Obtain topsoil only from well-drained sites where soil occurs in depth of 4 inches or more; do not obtain from bogs or marshes.
- C. Filter Fabric: Manufacturer's standard, pervious, geotextile fabric of polypropylene, nylon, or polyester fibers.
- D. Construction fence with T-posts.

PART 3-EXECUTION

3.1 PREPARATION

- A. Temporary Fencing: Install temporary fencing located as indicated or outside the drip line of trees to protect remaining vegetation from construction damage.
 - 1. Install construction fencing.
- B. Protect tree root systems from damage due to noxious materials caused by runoff or spillage while mixing, placing, or storing construction materials. Protect root systems from flooding, eroding, or excessive wetting caused by de-watering operations.
- C. Do not store construction materials, debris, or excavated material within the drip line of remaining trees. Do not permit vehicles or foot traffic within the drip line; prevent soil compaction over root systems.
- D. Existing trees to remain shall be protected at all times during the Contract period, by using fencing (i.e., snow fencing, construction fencing with metal staking). Tree protection fencing shall be maintained by the Contractor during construction. The protection area to be fenced (2') outside the drip line of the tree unless otherwise required by the Owner's Representative. No equipment shall be parked, driven or material stockpiled within the drip line area of the existing trees to remain. No gasoline, oil, chemicals, concrete or other material shall be dumped anywhere on site. Where vehicle or equipment traffic is necessary in the protection area of a tree, the soil shall be protected from compaction by (6"-10") layer of wood chip mulch.

3.2 EXCAVATION

- A. Install shoring or other protective support systems to minimize sloping or benching of excavations.
- B. Do not excavate within drip line of trees, unless otherwise indicated.
- C. Where excavation for new construction is required within drip line of trees, hand clear and excavate to minimize damage to root systems.

3.2 EXCAVATION

D. Where utility trenches are required within drip line of trees, tunnel under or around roots by drilling, auger boring, pipe jacking, or digging by hand.

1. Root Pruning: Prior approval is needed from the City Forester or Designee to cut main lateral roots or taproots; cut only smaller roots that interfere with installation of utilities. Cut roots with sharp pruning instruments; i.e. chain saw, reciprocating saw or pruning saw. Stump grinding equipment allowed so long as the final cut is clean, not ragged. Do not break, chop, rip or otherwise mangle roots.

3.3 RE-GRADING

- A. Grade Lowering: Where new finish grade is indicated below existing grade around trees, slope grade beyond drip line of trees. Maintain existing grades within drip line of trees.

3.4 TREE PRUNING

- A. The Forestry Division will conduct all pruning if limb elevation is needed to avoid equipment contact.

3.5 TREE REPAIR AND REPLACEMENT

- A. Aerate surface soil, compacted during construction, 10 feet beyond drip line and no closer than 36 inches to tree trunk. Drill 2-inch- diameter holes a minimum of 12 inches deep at 24 inches o.c. Backfill holes with an equal mix of augered soil and sand. Aeration of the surface soil may be required due to compaction during construction.
- B. Any trees damaged during construction shall be promptly reported to the Owner's Representative, who shall contact the City Forester or designee for an assessment of damages. The Contractor will be responsible for repair or replacement to the satisfaction of the City Forester or designee.

3.6 DISPOSAL OF WASTE MATERIALS

- A. Disposal: Remove excess excavated material, displaced trees, and excess chips from Owner's property. Burning is not permitted, dispose off site legally.

END OF SECTION 02231 – TREE PROTECTION AND PRUNING (REVISED 2005)

02300 EARTHWORK (REVISED 2005)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This section includes the following:
 1. Surveying and grade staking.
 2. Preparing subgrades for slabs-on-grade, walks, pavements, turfs, and plantings.
 3. Excavating and backfilling for building and structures.
 4. Drainage course of slabs-on-grade.
 5. Subbase course for concrete walks and pavements. If indicated on drawings.
 6. Base course for asphalt paving.
 7. Subsurface drainage backfill for walls and trenches.
 8. Excavating and backfilling trenches within building lines.
 9. Excavating and backfilling trenches for buried mechanical and electrical utilities and pits for buried utility structures.
 10. Rough Grading
 11. Finish Grading
 12. Site clean up

- B. Related Sections include the following:
 - 1. Division 1 Section "Construction Facilities and Temporary Controls."
 - 2. Division 2 Section "Site Clearing" for site stripping, grubbing, removing topsoil, and protecting trees to remain.
 - 3. Division 2 Section "Tree Protection and Trimming" for protecting and trimming trees to remain.
 - 4. Division 2 Section "Landscaping" for finish grading, including placing and preparing topsoil for Turfs and plantings.

1.3 UNIT PRICES

- A. Rock Measurement: Volume of rock actually removed, measured in original position, but not to exceed the following:
 - 1. 24 inches outside of concrete forms other than at footings.
 - 2. 12 inches outside of concrete forms at footings.
 - 3. 6 inches outside of minimum required dimensions of concrete cast against grade.
 - 4. Outside dimensions of concrete walls indicated to be cast against rock with out forms or exterior waterproofing treatments.
 - 5. 6 inches beneath bottom of concrete slabs on grade.
 - 6. 6 inches beneath pipe in trenches, and the greater of 24 inches wider than pipe or 42 inches wide.
- B. Unit prices for rock excavation include replacement with approved materials.

1.4 DEFINITIONS

- A. Backfill: Soil materials used to fill and excavation.
 - 1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
 - 2. Final Backfill: Backfill placed over initial backfill to fill a trench.
- B. Base Course: Layer placed between the subbase course and asphalt paving.
- C. Bedding Course: Layer placed over the excavated subgrade in a trench before laying pipe.
- D. Borrow: Satisfactory soil imported from off-site for use as fill or backfill.
- E. Drainage Course: Layer supporting slab-on-grade used to minimize capillary flow of pore water.
- F. Excavation: Removal of material encountered above subgrade elevations.
 - 1. Additional Excavation: Excavation below subgrade elevations as directed by Owner's Representative. Additional excavations and replacement material will be paid for according to Contract provisions for changes in the Work.
 - 2. Bulk Excavation: Excavations more than 10 feet in width and pits more than 30 feet in either length or width.
 - 3. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated dimensions without direction by Owner's Representative. Unauthorized excavation, as well as remedial work directed by Owner's Representative, shall be with out additional compensation.
- G. Fill: Soil materials used to raise existing grades.
- H. Rock: Rock Material in beds, ledges, unstratified masses, and conglomerate deposits and boulders of rock material exceeding 1 cu. yd. for bulk excavation or ¾ cu. yd. for footing, trench, and pit excavation that cannot be removed by rock excavating equipment equivalent to the following in size and performance ratings, without systematic drilling, ram hammering, ripping, or blasting, when permitted:
 - 1. Excavation of Footing, Trenches, and Pits: Late-model, track-mounted hydraulic excavator, equipped with a 42-inch wide, short-tip-radius rock bucket; rated at not less than 120-hp flywheel power with bucket-curling force of not less than 25,000 lbf and stick-crowd force of not less than 18,700 lbf; measured according to SAE J-1179.
 - 2. Bulk Excavation: Late-model, track-mounted loader; rated at not less than 210-hp flywheel power and developing a minimum of 45,000-lbf breakout force; measured according to SAE J-732.

- I. Rock: Rock material in beds, ledges, unstratified masses, and conglomerate deposits and boulders of rock material $\frac{3}{4}$ cu. yd. or more in volume that when tested by an independent geotechnical testing agency, according to ASTM D 1586, exceeds a standard penetration resistance of 100 blows/2 inches.
- J. Structures: Buildings, footings, foundation, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, other man-made stationary features constructed above or below the ground surface.
- K. Subbase Course: Layer placed between the subgrade and base course for asphalt paving, or layer placed between the subgrade and a concrete pavement or walk.
- L. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.
- M. Utilities include on-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.5 SUBMITTALS

- A. Product Data: For the following:
 - 1. Each type of plastic warning tape.
 - 2. Drainage fabric.
 - 3. Separation fabric.
- B. Samples: For the following:
 - 4. 30-lb samples, sealed in airtight containers, of each proposed soil material from on-site or borrow sources.
 - 5. 12-by-12-inch sample of drainage fabric.
 - 6. 12-by-12-inch sample of separation fabric.
- C. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated:
 - 1. Classification according to ASTM D 2487 of each on-site or borrow soil material proposed for fill and backfill.
 - 2. Laboratory compaction curve according to ASTM D 698 for each on-site or borrow soil material proposed for fill and backfill.
 - 3. Laboratory compaction curve according to ASTM D 1557 for each on-site or borrow soil material proposed for fill and backfill.
- D. Blasting plan approved by authorities having jurisdiction, for record purposes.

QUALITY ASSURANCE

- A. Comply with applicable requirements of NFPA 495, "Explosive Materials Code."
- B. Seismic Survey Agency: An independent testing agency, acceptable to authorities having jurisdiction, experienced in seismic surveys and blasting procedures to perform the following services:
 - 1. Report types of explosive and sizes of charge to be used in each area of rock removal, types of blasting mats, sequence of blasting operations, and procedures that will prevent damage to site improvements and structures on Project site and adjacent properties.
 - 2. Seismographic monitoring services during blasting operations.
- C. Geotechnical Testing Agency Qualifications: An independent testing agency qualified according to ASTM E 329 to conduct soil materials and rock-definition testing, as documented according to ASTM D 3740 and ASTM E 548.
- D. Pre-excavation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Meetings."

1.6 PROJECT CONDITIONS

- A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Owner's Representative and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify Owner's Representative not less than two working days in advance of proposed utility interruptions.

2. Do not proceed with utility interruptions without written permission from Owner's Representative.
 3. Contact utility-locator services for area where Project is located, at least 48 hours prior to commencing excavating. Call 1-800-922-1987 for all utility locations, including TV cable.
- B. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies to shut off services if lines are active.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
- B. Satisfactory Soils: ASTM D 2487 soil classification groups GW, GP, GM, SW, SP, and SM, or a combination of these group symbols; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.
- C. Unsatisfactory Soils: ASTM D 2487 soil classification groups, MH, CH, OL, OH, and PT, or a combination of these group symbols.
- D. Backfill and Fill: Satisfactory soil materials.
- E. Subbase: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.
- F. Base: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 95 percent passing a 3/4 inch sieve and not more than 8 percent passing a No. 200 sieve.
- G. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.
- H. Bedding: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.
- I. Drainage Fill: Washed, uniformly graded mixture of crushed stone, or crushed or uncrushed gravel; ASTM D448; coarse-aggregate grading Size 57: with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 sieve.
- J. Filter Material: Uniformly graded mixture of natural or crushed gravel, or crushed stone and natural sand; ASTM D448; coarse-aggregate grading Size 67; with 100 percent passing a 1-inch sieve and 0 to 5 percent passing a No. 4 sieve.

2.2 ACCESSORIES

- A. Warning Tape: Acid-and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility; colored as follows:
- B. Detectable Warning Tape: Acid-and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, minimum 6 inches wide and 4 mils thick continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored as follows:
 1. Red: Electric.
 2. Yellow: Gas, oil, steam, and dangerous materials.
 3. Orange: Telephone and other communications.
 4. Blue: Water systems.
 5. Green: Sewer systems.
- C. Drainage Fabric: Nonwoven geotextile, specifically manufactured as a drainage geotextile; made from polyolefins, polyesters, or polyamides; and with the following minimum properties determined according to ASTM D4759 and referenced standard test methods:
 1. Grab Tensile Strength: 120 lbf; ASTM D 4632.
 2. Tear Strength: 50 lbf; ASTM D 4533

3. Puncture Resistance: 70 lbf; ASTM D4833
 4. Water Flow Rate: 135 gpm per sq. ft.; ASTM D 4491.
 5. Apparent Opening Size: No. 70; ASTM D4751
- D. Separation Fabric: Woven geotextile, specifically manufactured for use as a separation geotextile; made from polyolefins, polyesters, or polyamides; and with the following minimum properties determined according to ASTM D4759 and referenced standard test methods.
1. Grab Tensile Strength: 200 lbf: ASTM D 4632
 2. Tear Strength: 75 lbf; ASTM D 4533.
 3. Puncture Resistance: 90 lbf; ASTM D 4833.
 4. Water Flow Rate: 4 gpm per sq. ft.; ASTM D 4491.
 5. Apparent Opening Size: No. 30; ASTM D 4751.

PART 3 - EXECUTION

3.1 PREPARTION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
- B. Protect subgrades and foundation soils against freezing temperatures or frost. Provide protective insulating materials as necessary.
- C. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.2 DE-WATERING

- A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.
- B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
 1. Obtain de-watering permit if required.
 2. Reroute surface water runoff away from excavation areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.
 3. Install a de-watering system to keep subgrades dry and convey ground water away from excavations. Maintain until de-watering is no longer required.

3.3 EXPLOSIVES

- A. Explosives: Obtain written permission from authorities having jurisdiction before bringing explosives to Project site or using explosives on Project site.
 1. Do not damage adjacent structures, property, or site improvements or weaken the bearing capacity of rock subgrade when using explosives.

3.4 SURVEYING AND GRADE STAKING

- A. Before earthwork operations are started, the site shall be completely staked out by the Contractor for the work of this section for the approval of the Owner's Representative. Surveying and staking is to be done by a City approved licensed surveyor.
- B. Grade stakes shall be set where spot elevations are shown on drawings as well as breaks in grade, along drainage swales and as otherwise required, to complete the work of this section to the elevations shown on the drawings or as modified in the field by the Owner's Representative.
- C. Maintain all benchmarks and other reference points; if disturbed or destroyed, notify the Owner's Representative and replace as directed.
- D. All surveys to consist of (50') foot grids with spot elevations unless otherwise specified.
- E. Rough Grade: Refer to Section 3.17 Rough Grading.
- F. Blue Tops: Refer to Section 3.19 Blue Topping.

3.5 EXCAVATION, GENERAL

- A. Unclassified Excavation: Excavation to subgrade elevations regardless of the character of surface and subsurface conditions encountered, including rock, soil materials, an obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.
- B. Classified Excavation: Excavation to subgrade elevations classified as earth and rock. Rock excavation will be paid for by adjusting the Contract Sum according to unit prices included in the Contract Documents.
 1. Earth excavation includes excavating pavements and obstructions visible on surface; underground structures, utilities, and other items indicated to be removed; together with soil, boulders, and other materials not classified as rock or unauthorized excavation.
 - a. Intermittent drilling; blasting, if permitted; ram hammering; or ripping of material not classified as rock excavation is earth excavation.
 2. Rock excavation includes removal and disposal of rock.
 - a. Do not excavate rock until it has been classified and cross-sectioned by Owner's Representative.
- C. Protection, Shoring and Bracing.
 1. In the event that existing utilities, structures, or underground water is encountered or exposed during the execution of this work, the Contractor shall notify the Owner's Representative immediately for procedures to follow.
 2. Install and maintain shoring, bracing and safety fencing or safety tape as required to keep structures, sidewalks, drives and streets safe to life, limb and property at all time. Provide shoring and bracing as required to stabilize earth slopes.
 3. Provide necessary decking, guards, fences, or planking to maintain safe pedestrian and vehicular traffic on and adjacent to the site.
 4. Keep public streets and existing paved areas clean at all times.

3.6 EXCAVATION FOR STRUCTURES

- A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. Extend excavations a sufficient distance from structures for placing and removing concrete form work, for installing services and other construction, and for inspections.
 1. Excavations for footing and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.
 2. Pile Foundations: Stop excavations from 6 to 12 inches above bottom of pile cap before piles are placed. After piles have been driven, remove loose and displaced material. Excavate to final grade, leaving solid base to receive concrete pile caps.
 3. Excavation for Underground Tanks, Basins, and Mechanical or Electrical Utility Structures: Excavate to elevations and dimensions indicated within a tolerance of plus or minus 1 inch. Do not disturb bottom of excavations intended for bearing surface.
 4. Compliance with City of Colorado Springs grading and erosion control plan as per drainage criteria manual, (manual can be obtained from the City of Colorado Springs Engineering Division).

3.7 EXCAVATION FOR WALKS AND PAVEMENTS

- A. Excavate surfaces under walks and pavements to indicated cross sections, elevations, and grades.

3.8 EXCAVATION FOR UTILITY TRENCHES

- A. Excavate trenches to indicated gradients, lines, depths, and elevations.
 1. Beyond building perimeter, excavate trenches to allow installation of tops of pipe in accordance with local requirements.
- B. Excavate trenches to uniform widths to provide a working clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit, unless otherwise indicated.
 1. Clearance: 12 inches on each side of pipe or conduit.
 2. Clearance: As indicated.
- C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of

pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.

1. For pipes and conduit less than 6 inches in nominal diameter and flat-bottomed, multiple-duct conduit units, hand-excavate trench bottoms and support pipe and conduit on an undisturbed subgrade.
 2. For pipes and conduit 6 inches or larger in nominal diameter, shape bottom of trench to support bottom 90 degrees of pipe circumference. Fill depressions with tamped sand backfill.
 3. Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.
- D. Trench Bottoms: Excavate trenches 4 inches deeper than bottom of pipe elevation to allow for bedding course. Hand excavate for bell of pipe.
1. Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

3.9 APPROVAL OF SUBGRADE

- A. Notify Owner's Representative when excavations have reached required subgrade.
- B. If Owner's Representative determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.
 1. Additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
- C. Proof roll subgrade with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof roll wet or saturated subgrades.
- D. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulator water, or construction activities, as directed by Owner's Representative.

3.10 UNAUTHORIZED EXCAVATION

- A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footings by extending bottom, without altering top elevation. Lean concrete fill may be used when approved by Owner's Representative.
 1. Fill unauthorized excavations under other construction or utility pipe as directed by Owner's Representative.

3.11 STORAGE OF SOIL MATERIALS

- A. Stockpile borrow materials and satisfactory excavated soil materials. Stockpile soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Conform to fugitive dust permit.
 1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.12 BACKFILL

- A. Place and compact backfill excavations promptly, but not before completing the following:
 1. Construction below finish grade including, where applicable, dampproofing, waterproofing, and perimeter insulation.
 2. Surveying locations of underground utilities for record documents.
 3. Inspecting and testing underground utilities.
 4. Removing concrete formwork.
 5. Removing trash and debris.
 6. Removing temporary shoring and bracing, and sheeting.
 7. Installing permanent or temporary horizontal bracing on horizontally supported walls.

3.13 UTILITY TRENCH BACKFILL

- A. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.
- B. Backfill trenches excavated under footings and within 18 inches of bottom of footings; fill with concrete to elevation of bottom of footings.

- C. Place compact initial backfill of subbase material, free of particles larger than 1 inch, to a height of 12 inches over the utility pipe or conduit.
 - 1. Carefully compact material under pipe haunches and bring backfill evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of utility system.
- D. Coordinate backfilling with utilities testing.
- E. Fill voids with approved backfill materials while shoring and bracing, and as sheeting is removed.
- F. Place and compact final backfill of satisfactory soil material to final subgrade.
- G. Install warning tape directly above utilities, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.

3.14 FILL

- A. Preparation: In areas requiring fill, all stripping operations shall be completed before backfilling has begun. Place fill and backfill on reasonably dry soil. No fill shall be placed on wet ground. Fill shall be laced in eight inch (8") lifts in compacted depth under pavements or concrete and ten inch (10") lifts compacted depth under planted, turfed or other areas. Each layer shall be compacted to a firm surface by sheepfoot rollers or pneumatic rollers. Fill and backfill shall be compacted to 85% density under areas to be turned or planted and 95% density under all pavements and improvements. Density tests shall be modified Proctor Test taken at optimum moisture content.
- B. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.
- C. Place and compact fill material in layers to required elevations as follows:
 - 1. Under grass and planted areas, use satisfactory soil material, in no more than 10" lifts.
 - 2. Under walks and pavements, use satisfactory soil material, in no more than 8" lifts.
 - 3. Under steps and ramps, use engineered fill.
 - 4. Under building slabs, use engineered fill.
 - 5. Under footing and foundations, use engineered fill.
- D. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

3.15 MOISTURE CONTROL

- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to within 2 percent of optimum moisture content.
 - 1. Do not place backfill of fill material on surfaces that are muddy, frozen, or contain frost or ice.
 - 2. Remove and replace, or scarify and air-dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percents and is too wet to compact to specified dry unit weight.

3.16 COMPACTION OF BACKFILLS AND FILLS

- A. Place backfill and fill materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
- B. Place backfill and fill materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.
- C. Compact soil to not less than the following percentages of maximum dry unit weight according ASTM D 1557:
- D. Compact soil to not less than the following percentages of maximum dry unit weight according to ASTM D 698:
 - 1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill material at 95 percent.
 - 2. Under walkways, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill material at 92 percent.
 - 3. Under Turf or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill material at 85 percent.

3.17 ROUGH GRADING

- A. General: Uniformly grade all areas covered by the project, including excavated and fill sections. The finished surface shall be smooth, within a 1/10 of a foot compacted and free from irregular surface changes. The degree of finish shall be that ordinarily obtainable from blade grade operations. The final surface shall be not more than (.1) feet above or below the established grade or approved cross section.
 - 1. Provide a smooth transition between adjacent existing grades and new grades.
 - 2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.
- B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:
 - 1. Turf or Unpaved Areas: Plus or minus 1/10 of an inch.
 - 2. Walks: Plus or minus 1/10 of an inch.
 - 3. Pavements: Plus or minus ½ inch.
- C. Grading inside Building Lines: Finish subgrade to a tolerance of ½ inch when tested with a 10-foot straightedge.
- D. Contractor to provide survey to verify grades, to include swales, to satisfaction of Owner's Representative.
- E. The Owner's Representative shall approve final rough grade, prior to Contractor proceeding with any permanent site improvements.

3.18 FINISH GRADING

- A. Upon completion of construction, all areas which have been excavated, filled, or otherwise disturbed shall be covered with earth to a depth required to bring finished grade to the elevation indicated on drawings. This shall include the depth of topsoil.
- B. Topsoil shall be placed to provide a minimum depth of four inches (4") in all areas to receive, sod or as otherwise indicated.
- C. Topsoil shall be graded and dragged to prevent irregularities and depressions in which water will be retained.

3.19 BLUE TOPPING

- A. Provide blue top staking at 50 foot grids in all disturbed areas to receive imported topsoil and sodded turfgrass, to be done for all areas 5% or less, as well as under all areas to receive asphalt pavement.

3.20 SUBSURFACE DRAINAGE

- A. Drainage Piping: Drainage pipe is specified in Division 2 Section "Foundation Drainage Systems."
- B. Subsurface Drain: Place a layer of drainage fabric around perimeter of drainage trench as indicated. Place a 6-inch course of filter material on drainage fabric to support drainage pipe. Encase drainage pipe in a minimum of 12 inches of filter material and wrap in drainage fabric, overlapping sides and ends at least 6 inches.
 - 1. Compact each course of filter material to 95 percent of maximum dry unit weight according to ASTM D 698.
- C. Drainage Backfill: Place and compact filter material over subsurface drain, in width indicated, to within 12 inches of final subgrade. Overlay drainage backfill with one layer of drainage fabric, overlapping sides and ends at least 6 inches.
 - 1. Compact each course of filter material to 95 percent of maximum dry density according to ASTM D 698.
 - 2. Place and compact impervious fill material over drainage backfill to final subgrade.

3.21 SUBBASE AND BASE COURSES

- A. Under pavements and walks, place subbase course on prepared subgrade and as follows: If indicated on drawings.
 - 1. Place base course material over subbase.

2. Compact sub base and base courses at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.
 3. Shape subbase and base to required crown elevations and cross-slope grades.
 4. When thickness of compacted subbase or base course is 6 inches or less, place materials in a single layer.
 5. When thickness of compacted subbase or base course exceeds 6 inches, place materials in equal layers, with no layer more than 6 inches thick or less than 3 inches thick when compacted.
- B. Pavement Shoulders: Place shoulders along edges of subbase and base course to prevent lateral movement. Construct shoulders, at least 12 inches wide, of satisfactory soil materials and compact simultaneously with each subbase and base layer to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

3.22 DRAINAGE COURSE

- A. Under slabs-on-grade, place drainage course on prepared subgrade and as follows:
1. Compact drainage course to required cross sections and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 698.
 2. When compacted thickness of drainage course is 6 inches or less, place materials in a single layer.
 3. When compacted thickness of drainage course exceeds 6 inches, place materials in equal layers, with no layer more that 6 inches thick or less than 3 inches thick when compacted.

3.23 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing. A sufficient number of density tests of the backfill and subgrade may be ordered by the Owner's Representative to determine that the backfill and subgrade complies with the appropriate Subsection of this Section.
- B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.
- C. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Owner's Representative.
- D. Testing agency with test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2992, and ASTM D 2937, as applicable. Tests will be performed at the following locations and frequencies:
1. Paved and Building Slab Areas: At subgrade and at each compacted fill and backfill layer, at least one test for every 2000 sp. ft. or less of paved area or building slab, but in no case fewer than three tests.
 2. Foundation Wall Backfill: At each compacted backfill layer, at least one test for each 100 feet or less of wall length, but no fewer than two tests.
 3. Trench Backfill: At each compacted initial and final backfill layer, at least one test for each 150 feet or less of trench length, but no fewer than two tests.
- E. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; re-compact and retest until specified compaction is obtained. These tests shall be made by an approved testing laboratory and paid for by the City on a first time basis only.
- F. Owner's Representative shall approve final rough grade.

3.24 PROTECTION

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

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- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
 - 1. Scarify or remove and replace soil material to depth as directed by Owner's Representative; reshape and re-compact.
- C. Where settling occurs before warranty period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
 - 1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to the greatest extent possible.

3.25 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.
- B. Transport surplus satisfactory soil to designated storage areas on Owner's property. Stockpile or spread soil as directed by Owner's Representative.

END OF SECTION 02300

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes exterior cement concrete pavement for the following:
 - 1. Driveways and roadways.
 - 2. Parking lots.
 - 3. Curbs and gutters.
 - 4. Walkways and all other flatwork.
- B. Related Sections include the following:
 - 1. Division 2 Section "Earthwork" for subgrade preparation, grading, and subbase course.
 - 2. Division 2 Section "Pavement for Joint Sealants" for joint sealants within concrete pavement and at isolation joints of concrete pavement with adjacent construction.

1.3 DEFINITIONS

- A. Cementitious Materials; Portland Cement shall conform to the specifications for Portland Cement 9ASTM C-150) and specifications for air-entrained Portland Cement (ASTM C-175 or C-595) and shall be Type IIA (Air-Entraining) cement, unless sulfate conditions allow otherwise. Table 2.2.3 in Chapter 2.2 of ACI 201 presents cement recommendations for sulfate resistances. In addition to the standard chemical requirements for Portland cement in ASTM C-150, the maximum percent of alkalis shall be as specified in Table 2 of ASTM C-150 for low alkali cement. Other types of cement or admixtures are only to be used upon approval by the Owner's Representative.

1.4 SUBMITTALS

- A. Product Data: For each type of manufactured material and product indicated.
- B. Design Mixes: For each concrete pavement mix. Include alternate mix designs when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments.
- C. Samples: 10-lb sample of exposed aggregate.
- D. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated, based on comprehensive testing of current materials:

- E. Material Certificates: Signed by manufacturers certifying that each of the following materials complies with requirements;
 - 1. Cementitious materials and aggregates.
 - 2. Steel reinforcement and reinforcement accessories.
 - 3. Fiber reinforcement.
 - 4. Admixtures.
 - 5. Curing Compounds.
 - 6. Applied finish materials.
 - 7. Bonding agent or adhesive.
 - 8. Joint fillers.
- F. Minutes of pre-installation conference submitted by Contractor.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: an experienced installer who has completed pavement work similar in materials, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- B. Manufacturer Qualifications: Manufacturer of ready-mixed concrete products complying with ASTM C94 requirements for production facilities and equipment.
 - 1. Manufacturer must be certified according to the National Ready Mix Concrete Association's Plant Certification Program.
- C. Testing Agency Qualifications: An independent testing agency, acceptable to authorities having jurisdiction, qualified according to ASTM C1077 and ASTM E 329 to conduct the testing indicated, as documented according to ASTM E 548.
- D. Source Limitations: Obtain each type or class of cementitious Material of the same brand from the same manufacturer's plant and each aggregate from one source.
- E. ACI Publications: Comply with ACI 301, "Specification for Structural Concrete," unless modified by the requirements of the Contract Documents.
- F. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixes.
- G. Mockups: Cast mockups of full-size sections of concrete pavement to demonstrate typical joints, surface finish, texture, color, and standard of workmanship.
 - 1. Build mockups in the location and of the size indicated or, if not indicated, as directed by Owner's Representative.
 - 2. Notify Owner's Representative three days in advance of dates and times when mockups will be constructed.
 - 3. Obtain Owner's Representative approval of mockups before starting construction.
 - 4. Maintain approved mockups during construction in an undisturbed condition as a standard for judging the completed pavement.
 - 5. Demolish and remove approved mockups from the site when directed by Owner's Representative.
 - 6. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- H. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division I Section "Project Meetings."
 - 1. Before submitting design mixes, review concrete pavement mix design and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with concrete pavement to attend, including the following:
 - a. Contractor's superintendent.
 - b. Ready-mix concrete producer.
 - c. Concrete subcontractor.

1.6 PROJECT CONDITIONS

- A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

PART 2 – PRODUCTS**2.1 FORMS**

- A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, smooth exposed surfaces.
 - 1. Use flexible or curved forms for curves of a radius 100 feet or less.
- B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
- C. Forms for concrete shall be used for all vertical surfaces, mortar type, true to required lines and grades, and of sufficient strength to maintain shape during the placing of the concrete and the mechanical finishing without springing or settling. Wood forms shall be two inch (2") (nominal) surfaced plant; metal forms shall be approved section and shall have a flat surface on the top of not less than one and three-quarter inches (1-3/4"). Forms shall be thoroughly cleaned of all dirt, mortar, and foreign matter before being used. Unit lengths of forms shall be jointed in advance of the point of placing concrete. Flexible, curbed or wood forms of the proper radii shall be used for curbs having a radius of less than One hundred feet (100'). All forms shall have dimensions of the City of Colorado Springs specified curb and gutter sections.
- D. Forms shall be equipped with not less than three (3) staking points per each ten feet (10') of length with means for securely locking the form to each stake. Flange braces and staking pockets shall extend outward on the base not less than two-thirds (2/3) of the height of the form. Forms that are bent, twisted, warped, broken, or forms that have battered or splintered top faces shall be removed from the job. Repaired forms shall not be used until they have been inspected and approved by the owner's Representative. The top and face of a form shall not vary from a true plane by more than one-fourth inch (1/4") in ten feet (10'). Forms shall be cleaned and oiled before concrete is placed against them. The alignment and grade of forms shall be checked and approved immediately before placing the concrete.

2.2 STEEL REINFORCEMENT

- A. Plain-Steel Welded Wire Fabric: ASTM A 185, fabricated from as-drawn steel wire into flat sheets.
- B. Deformed-Steel Welded Wire Fabric: ASTM A 497, flat sheet.
- C. Epoxy-Coated Welded Wire Fabric: ASTM A 884/A 884M, Class A, plain steel.
- D. Reinforcement Bars: ASTM A 615/A 615M, Grade 60, deformed.
- E. Epoxy-Coated Reinforcement Bars: ASTM A 775/A 775M; with ASTM A 615/A 615M, Grade 60, deformed bars.
- F. Steel Bar Mats: ASTM A 184/A 184M; with ASTM A 615/A 615M, Grade 60, deformed bars; assembled with clips.
- G. Plain Steel Wire: ASTM A 82, as drawn.
- H. Epoxy-Coated Wire: ASTM A 884/A 884M, Class A coated, plain steel.
 - I. Joint Dowel Bars: Plain steel bars, ASTM A 615/A 615M, Grade60. Cut bars true to length with ends square and free of burrs.
- J. Epoxy-Coated Joint Dowel Bars: ASTM A 775/A 775M; with ASTM A 615/A 615M, Grade 60, plain steel bars.
- K. Tie Bars: ASTM A 615/A 615M, Grade 60, deformed.
- L. Hook Bolts: ASTM A 307, Grade A, internally and externally threaded. Design hook-bolt joint assembly to hold coupling against pavement form and in position during concreting operations, and to permit removal without damage to concrete or hook bolt.
- M. Bar Supports: Bolsters, chairs spacers, and other devices for spacing, supporting, and fastening reinforcement bars, welded wire fabric, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete or fiber-reinforced concrete of greater compressive strength than concrete, and as follows:
 - 1. Equip wire bar supports with sand plates or horizontal runners where base materials will not support chair legs.
 - 2. For epoxy-coated reinforcement, sue epoxy-coated or other dielectric-polymer coated wire bar supports.

- N. Epoxy Repair Coating: Liquid two-part epoxy repair coating, compatible with epoxy coating on reinforcement.

2.3 CONCRETE MATERIALS

- A. The amounts and proportions of fine and coarse aggregates shall be such as to produce a plastic, workable mix which can be readily placed into the corners and angles of the forms and around reinforcement and other embedded fixtures without undue accumulation of water or laitance on the surface, and such that there will be no honeycombing in the structure. Proportions of fine and coarse aggregates shall be such that the ratio of the coarse to the fine aggregate shall not be less than one (1) nor more than two (2).
- B. If in the judgment of the Owner’s Representative, based on laboratory tests, concrete aggregates from a given source are detrimentally reactive with alkalies in Portland Cement, they shall be used in concrete in combination with low-alkali cement only.
- C. Concrete aggregates shall consist of sand-gravel, gravel, crushed stone, or limestone; the particles shall be clean, hard, tough, durable, of uniform quality, free of any soft, thin, or elongated pieces, disintegrated stone, dirt, organic or other injurious materials occurring either free or as a coating. All aggregate must be supplied from a source approved by the Owner’s Representative. Aggregate shall be made of the following sub sections:
- D. Fine Aggregate: Fine aggregate shall conform to ASTM C-33. Fine aggregate shall consist of sand or other inert materials, or combinations thereof approved by the Owner’s Representative, and having hard, strong, durable particles, free from adherent coating. Fine aggregate shall be thoroughly washed to remove shale, coal, mica, clay, loam, alkali, organic matter or other deleterious matter.
 - 1. Deleterious Substances. The amount of deleterious substances in the washed aggregate shall not exceed the following values:
 - a. Clay Lumps & Friable Particles, % by weight 3.0 MAX.
 - b. Coal & Lignite, % by weight 1.0 MAX.
 - c. Friable Particles, % by weight 1.0 MAX.
 - d. Sand Equivalent 75 MIN.
 - e. Fineness Modulus 2.3-3.1 MAX.
 - f. Sodium Sulfate Soundness, % by weight 10 MAX.
 - 2. Grading. Fine aggregate shall be regularly graded from coarse to fine in two (2) sizes and when tested by means of the U.S. Standard, sieves shall conform to the following requirements expressed as percentages by weight:

Sieve Size or Test Procedure	Percent Passing or Test Requirement *(Concrete Sand)
3/8"	100
No. 4	95-00
No. 8	80-00
No. 16	50-85
No. 30	25-60
No. 50	5-30
No. 100	0-10
No. 200	**0-3

**The fine aggregate shall have not more than 45% passing any sieve and retained on the next consecutive sieve.

- E. Coarse Aggregate. Gravel and crushed stone shall conform to ASTM C-33. Coarse aggregate shall consist of gravel, crushed stone, or other inert material or combinations thereof approved by the Owner’s Representative, and having hard, strong, durable pieces free from adherent coating. Coarse aggregate shall be thoroughly washed of clay, loam, bark, sticks, alkali, organic matter, shale, coal, mica, or other deleterious material.

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Deleterious Substances. The amount of deleterious substances shall not exceed the following values:

- a. Clay Lumps & Friable Particles, % by weight 3.0 MAX
- b. Coal & Lignites, % by weight .5 MAX
- c. Sum of Clay Lumps, Friable Particles and 5.0 MAX
- d. Chert, % by weight 50 MAX
- e. Abrasion, % by weight 50 MAX
- f. Sodium Sulfate Soundness, % by weight 12 MAX

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Wood waste is defined as all material which, after drying to constant weight, has a specific gravity less than 1.0.

Grading. Coarse aggregate, when tested in conformity with ASTM C-136 shall conform to one or more of the following gradings as called for elsewhere in the specifications, special provisions or on the plans.

Sieve size or Test Procedure	Percent Passing or Test Requirement		
	No. 357	No. 467	No. 57
2 1/2"	100	---	---
2"	95-100	100	---
1 1/2"	---	95-100	100
1"	35-70	---	95-100
3/4"	---	35-70	---
1/2"	10-30	---	25-60
3/8"	---	10-30	---
No. 4	0-5	0-5	0-10
No. 8	---	---	0-5
No. 200	*1.0 MAX	*1.0 MAX	*1.0 MAX

*1.5 MAX for crusher fines

NOTE: Size No. 67 may also be used on a case-by-case basis when approved by the Owner's Representative. The above values are in percentages by weight from AASHTO M-80 No. 357 and 467. Other gradations may be used when specified by the Owner's Representative.

- F. Concrete Strength. Concrete made from the coarse aggregate, graded to comply with the requirements of these specifications, combined with the specified proportions of cement and the fine aggregate proposed for use with the coarse aggregate shall develop a compressive strength at the age of 28 days of not less than 4000 psi.
- G. Water. Water used in concrete shall be potable, clean, and free from deleterious amounts of acids, alkalis, or any organic materials.
- H. Exposed Aggregate. Selected, hard, and durable; washed; free of material that reacts with cementitious material or causes staining; from a single source, with gap graded coarse aggregate as follows:

- Aggregate Sizes: 3/4 to 1 inch nominal.
- Aggregate Sizes: 1/2 to 3/4 inch nominal.
- Aggregate Sizes: 3/8 to 5/8 inch nominal.

2.4 ADMIXTURES

- A. General: Admixtures certified by manufacturer to contain not more than 0.1 percent water-soluble chloride ions by mass of cement and to be compatible with other admixtures. Calcium Chloride shall not be used as an antifreeze agent. Calcium Chloride as an accelerating agent in amounts not to exceed 1.5% by weight of cement may be used upon the approval of the Owner's Representative.
- B. Air-Entraining Admixture: ASTM C260.

- C. Water-Reducing Admixture: ASTM C 494, Type A.
- D. High-Range, Water-Reducing Admixture: ASTM C 494, Type F.
- E. Water-Reducing and Accelerating Admixture: ASTM C 494, Type E.
- F. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.

2.5 FIBER REINFORCEMENT

- A. Synthetic Fiber: Fibrillated polypropylene fibers engineered and designed for use in concrete pavement, complying with ASTM C 1116, Type III ½ to 1-1/2 inches long.
- B. Synthetic Fiber: Fibrillated or monofilament polypropylene fibers engineered and designed for use in concrete payment, complying with ASTM C 1116, Type III, ½ to 1-1/2 inches long.
- C. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
- D. Products: Subject to compliance with requirements, provide one of the following:
Fibrillated Fibers:
 - a. Fibrasol F; Axim Concrete Technologies.
 - b. Fibermesh; Fibermesh, Div. Of Synthetic Technologies.
 - c. Forta; Forta Corporation.
 - d. Grace Fibers: W.R. Grace & Co., Construction Products Div.
 Monofilament Fibers:
 - a. Fibrasol IIP; Axim Concrete Technologies.
 - b. Fiberstrand 100; Euelid Chemical Co.
 - c. Fibermix Stealth; Fibermesh, Div. Of Synthetic Industries.
 - d. Forta Mono; Forta Corporation.
 - d. Grace MicroFiber; W.R. Grace & Co., Construction Products Div.
 - f. Polystrand 1000; Metalcrete Industries.

2.6 CURING MATERIALS

- A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. Dry.
- B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- C. Clear Waterborne Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B.
- D. White Waterborne Membrane-Forming Curing Compound: ASTM C 309, Type2, Class B.

2.7 RELATED MATERIALS

- A. Expansion- and Isolation-Joint Filler Strips: ASTM D 1751, asphalt-saturated cellulose fiber.
- B. Coloring Agent: ASTM C979, synthetic mineral-oxide pigments or colored water-reducing admixtures; color stable, nonfading, and resistant to lime and other alkalis.
Color: As indicated by manufacturer's designation.
Color: Match Architect's sample.
Color: As selected by Architect from manufacturer's full range.
- C. Pavement-Marking Paint: Latex, water-base emulsion; ready mixed; complying with FS TT-P-1952.
Color: As indicated.
Color: Blue for handicapped requirements, white elsewhere.
Color: Blue for handicapped requirements, yellow for fire lanes, white elsewhere.
- D. Wheel Stops: Precast, air-entrained concrete; 2500-psi minimum compressive strength; approximately 6 inches high, 9 inches wide, and 84 inches long. Provide chamfered corners and drainage slots on underside, and provide holes for dowel-anchoring to substrate.
 - 1. Dowels: #4 rebar steel, minimum length 24 inches.
- E. Slip-Resistive Aggregate Finish: Factory-graded, packaged, rustproof, nonglazing, abrasive aggregate of fused aluminum-oxide granules or crushed emery with emery aggregate containing not less than 50 percent aluminum oxide and not less than 25 percent ferric oxide; unaffected by freezing, moisture, and cleaning materials.
- F. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

- G. Chemical Surface Retarder: Water-soluble, liquid set retarder with color dye, for horizontal concrete surface application, capable of temporarily delaying final hardening of concrete to a depth of 1/8 to ¼ inch.

2.8 CONCRETE MIXES

- A. Prepare design mixes, proportioned according to ACI211.1 and ACI301, for each type and strength of normal-weight concrete determined by either laboratory trial mixes or field experience.
- B. Use a qualified independent testing agency for preparing and reporting proposed mix designs for the trial batch method.
 - 1. Do not use Owner’s field quality-control testing agency as the independent testing agency.
- C. Proportion mixes to provide concrete with the following properties:
 Compressive Strength (28 days): 4000 psi.
 Maximum Water-Cementitious Materials Ratio: 0.45.
 Slump Limit: 4 inches.
- D. Add air-entraining admixture at manufacturer’s prescribed rate to result in concrete at a point of placement having an air content of 4 to 6 percent.
- E. Add air-entraining admixture at manufacturer’s prescribed rate to result in concrete at point of placement having an air content as follows within a tolerance of plus or minus 1.5 percent..
- F. Synthetic Fiber: Uniformly disperse in concrete mix at manufacturer’s recommended rate, but not less than 1.5 lb./cu. Yd.
- G. Coloring Agent: Add coloring agent to mix according to manufacturer’s written instructions.

2.9 CONCRETE MIXING

- A. Ready-Mixed Concrete: Comply with requirements and with ASTM C94.

Specified Compressive Strength at 28 Days 4000 psi	Maximum Water/Cement Ratio by Weight 0.45
Minimum Cement Content per Cubic Yard of Concrete 564 lbs.	

The proportioning of aggregate to cement shall be such as to produce a good workable mix and the slump shall be a maximum of four inches (4”) as per ASTM C-143. The equipment for batching of the aggregates, cement, water, and air-entraining agent shall be such that accurate control can be held over the various constituents.

- B. Ready-mixed concrete shall comply with ASTM C-94 for ready-mixed concrete and the following specifications:
- C. Time of Haul: Concrete transportation in truck mixers or truck agitators shall be delivered to the site of work and completely discharged within a period of ninety (90) minutes after the cement comes in contact with the mixing water or with the combined aggregates when the combined aggregates contain free moisture in excess of 2% by weight. If hot weather exists causing the temperature of the concrete to rise above 90 degrees Fahrenheit, then the time of haul shall be within a period of sixty (60) minutes.
- D. Production and Delivery: The production and the delivery of ready-mixed concrete shall be such that placing and finishing shall be continuous in so far as the operations require.
- E. Testing of Concrete: Samples for test cylinders should be taken not less than once each day or not less than each 50 cubic yards of concrete placed. This requirement applies to both reinforced and reinforced concrete work unless otherwise directed by the Owner’s Representative. For structural elements, the Owner’s Representative may call for additional samples for strength testing.
- F. A minimum of four cylinders shall be prepared for each sample of concrete. Once cylinder shall be strength tested after 7 days of curing time. Two cylinders shall be strength tested after 28 days of curing time.
- G. In the event the initial 28 day cylinder should fail, the remaining two cylinders should be strength tested after 45 days of curing time.

- H. Samples for slump and air-content testing should be taken for each truck delivery or not less than each 12 cubic yards where site batching is performed. The Owner's Representative may vary the frequency of sampling and testing depending on site conditions. The preparation, handling, storage and testing procedures of all samples shall be in conformance with the applicable ASTM and AASHTO standards.
1. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mix type, mix time, quantity, and amount of water added.

PART 3 – EXECUTION

3.1 PREPARATION

- A. Proof-roll prepared subbase surface to check for unstable areas and verify need for additional compaction. Proceed with pavement only after nonconforming conditions have been corrected and subgrade is ready to receive pavement.
- B. Remove loose material from compacted subbase subbase surface immediately before placing concrete.
- C. Before any concrete is placed, all equipment for mixing and transporting the concrete shall be cleaned. All debris and ice shall be removed from the places to be occupied by the concrete. Forms shall be thoroughly oiled. Water shall be removed from the place of deposit before concrete is placed. Newly placed concrete shall be protected from any water damage. The top six (6) inches of the bedding or subgrade shall be graded and compacted to a minimum density of 90% ASTM D-1557 prior to placement of the concrete.
- D. When concrete placed on earth surfaces is necessary, the surfaces shall be free from frost, ice, mud and water. Concrete shall be conveyed from the mixer to the place of final deposit by methods which will prevent the separation or loss of materials. Concrete shall not be free dropped from more than four (4) feet.
- E. Equipment for tremming, chuting, pumping, and pneumatically conveying concrete shall be of such size and design as to insure a practically continuous flow of concrete at the delivery end without separation of materials.

3.2 EDGE FORMS AND SCREED CONSTRUCTION

- A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides for pavement to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.
- B. Clean forms after each use and coat with form release agent to ensure separation from concrete without damage.

3.3 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating reinforcement and with recommendations in CRSI's "Placing Reinforcing Bars" for placing and supporting reinforcement.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.
- C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.
- D. Install welded wire fabric in lengths as long as practicable. Lap adjoining pieces at least one full mesh, and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.
- E. Install fabricated bar mats in lengths as long as practicable. Handle units to keep them flat and free of distortions. Straighten bends, kinks, and other irregularities, or replace units as required before placement. Set mats for a minimum 2-inch overlap to adjacent mats.

3.4 JOINTS

- A. General: Construct construction, isolation, and contraction joints and tool edgings true to line with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline, unless otherwise indicated.
 - 1. When joining existing pavement, place transverse joints to align with previously placed joints, unless otherwise indicated.
- B. Construction Joints: Set construction joints at side and end terminations of pavement and at locations where pavement operations are stopped for more than one-half hour, unless pavement terminates at isolation joints.
 - 1. Continue reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of pavement strips, unless otherwise indicated.
 - 2. Provide tie bars at sides of pavement strips where indicated.
- C. Isolation Joints: Form isolation joints of preformed joint-filler strips abutting catch basins, manholes, inlets, structures, walks, other fixed objects, and where indicated.
 - 1. Locate expansion joints at intervals of 50 feet, unless otherwise indicated.
 - 2. Extend joint fillers full width and depth of joint.
 - 3. Terminate joint filler not less than 1/2 inch or more than 1 inch below finished surface if joint sealant is indicated.
 - 4. Place top of joint filler flush with finished concrete surface if joint sealant is not indicated.
 - 5. Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.
 - 6. Protect top edge of joint filler during concrete placement with metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.
- D. Install dowel bars and support assemblies at joints where indicated. Use 5/8 inch cardboard tube or PVC. Lubricate or asphalt-coat one-half of dowel length to prevent concrete bonding to one side of joint.
- E. Contraction Control Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to a least one fourth of the concrete thickness, as follows:
 - 1. Grooved Joints: Form contraction joints after floating by grooving and finishing each edge of joint with groover tool to the following radius. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover marks on concrete surfaces.
 - a. Radius: 1/2 inch
 - 2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8 inch-wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before developing random contraction cracks. Within 24 hours of initial pour.
- F. Edging: Tool edges of pavement, gutters, curbs and joints in concrete after initial floating with an edging tool to the following radius. Repeat tooling of edges after applying surface finishes. Eliminate tool marks on concrete surfaces.
 - 1. Radius: 1/2 inch

3.5 CONCRETE PLACEMENT

- A. Inspection: Before placing concrete, inspect and complete formwork installation, reinforcement steel, and items to be embedded or cast in. Notify other trades to permit installation of their work. Owner's Representative needs to be notified 24 hours to inspect forms prior to pouring concrete.
- B. Remove snow, ice, or frost from subbase surface and reinforcement before placing concrete. Do not place concrete on frozen surfaces.
- C. Moisten subbase to provide a uniform dampened condition at the time concrete is placed. Do not place concrete around manholes or other structures until they are at the required finish elevation and alignment.
- D. Comply with requirements and with recommendations in ACI 304R for measuring, mixing, transporting, and placing concrete.
- E. Do not add water to concrete during delivery, at Project site, or during placement.

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- F. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.
 - G. Consolidate concrete by mechanical vibrating equipment supplemented by hand-spading, rodding, or tamping. Use equipment and procedures to consolidate concrete according to recommendations in ACI309R.
 - 1. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Consolidate with care to prevent dislocating reinforcement, dowels, and joint devices.
 - H. Expansion joints shall be 1/2 inch premolded felt expansion joint material and shall be placed every 50 feet both ways unless otherwise indicated on drawings.
 - I. Control joints shall 1 1/2" in depth and shall be placed every five feet (5') each way unless otherwise indicated on drawings.
 - J. Base course is to be placed if indicated on drawings and is to be 3/8 +/- crusher waste or gravel to Standard Class 6.
 - K. All sleeving under concrete surfaces shall be stamped into surfaced with an "S" on each end of the sleeve.
 - L. Screed pavement surfaces with a straightedge and strike off. Commence initial floating using bull floats or darbies to form an open textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading dry-shake surfaces treatments.
 - M. Curbs and Gutters. When automatic machine placement is used for curb and gutter placement, submit revised mix design and laboratory test results that meet or exceed requirements. Produce curbs and gutters to required cross section, lines, grades, finish, and jointing as specified for formed concrete. If results are not approved, remove and replace with formed concrete.
 - N. Slip-Form Pavers: When automatic machine placement is used for pavement, submit revised mix design and laboratory test results that meet or exceed requirements. Produce pavement to required thickness, lines, grades, finishes, and jointing as required for formed pavement.
 - 1. Compact subbase and prepare subgrade of sufficient width to prevent displacement of paver machine during operations.
 - O. When adjoining pavement lanes are placed in separate pours, do not operate equipment on concrete until pavement has attained 85 percent of its 28-day compressive strength.
 - P. Cold-Weather Placement: Comply with ACI306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
 - Concrete shall not be placed in cold weather unless the ambient temperature has reached 40 degrees Fahrenheit at 9:00 a.m., and the temperature is rising. Cold weather protection blankets, etc. will be required for five days after concrete has been placed. Uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 degrees F and not more than 80 deg F at point of placement.
 - Do not use frozen materials or materials containing ice or snow.
 - Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators, unless otherwise specified and approved in mix designs.
 - Q. Hot-Weather Placement: Place concrete according to recommendations in ACI305R and as follows when hot-weather conditions exist:
 - Cool ingredients before mixing to maintain concrete temperature at time of placement below 90 degrees F. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
 - Cover reinforcement steel with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
- Fog-spray forms, reinforcement steel, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

3.6 CONCRETE FINISHING

- A. General: Wetting of concrete surfaces during screeding, initial floating, or finishing operations is prohibited.
- B. Float Finish: Begin the second floating operation when bleed-water sheen has disappeared and the concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats, or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots, and fill low spots. Refloat surface immediately to uniform granular texture.
 - 1. Medium-to-Fine-Textured Broom Finish: Draw a soft bristle broom across float-finished concrete surface perpendicular to line of traffic to provide a uniform, fine-line texture. Or as otherwise indicated on drawings.

3.7 SPECIAL FINISHES

- A. Monolithic Exposed Aggregate Finish: Expose coarse aggregate to pavement surfaces as follows:
 - 1. Immediately after floating, spray-apply chemical surface retarder to pavement according to manufacturer's written instructions.
 - 2. Cover with plastic sheeting, scaling laps with tape, and remove when ready to continue finishing operations.
 - 3. Without dislodging aggregate, remove excess mortar by lightly brushing surface with a stiff, nylon bristle broom.
 - 4. Fine-spray surface with water and brush. Repeat water flushing and brushing cycle until cement film is removed from aggregate surfaces to depth required.
- B. Slip-Resistant Aggregate Finish: Before final floating, apply slip-resistant aggregate finish to pavement surfaces according to manufacturer's written instructions and as follows.
 - 1. Uniformly spread 25 lb/100 sq. ft. of dampened non slip aggregate over the surface. Tamp aggregate flush with surface using a steel trowel, but do not force below surface.
 - 2. After curing, lightly work surface with a steel wire brush or an abrasive stone, and water to expose non slip aggregate.
- C. Colored Dry-Shake Hardener Finish: After initial floating, apply colored dry-shake materials to pavement surfaces according to manufacturer's written instructions and as follows:

Uniformly apply colored dry-shake materials at a rate of 100 lb/100 sq. ft. unless greater amount is recommended by manufacturer to match pavement color required.

Uniformly distribute approximately two-thirds of colored dry-shake material over the concrete surface with mechanical spreader, and embed by power floating. Follow power floating with a second shake application, uniformly distributing remainder of dry-shake material to ensure uniform color, and embed by power floating.

After final floating, apply a hand-trowel finish followed by a broom finish to concrete. Cure concrete with curing compound recommended by dry-shake material manufacturer. Apply curing compound immediately after final finishing.

3.8 CONCRETE PROTECTION AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI306.1 for cold-weather protection and follow recommendations in ACI305R for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb./sq. ft x h before and during finishing operations. Apply according to manufacture's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Begin curing after finishing concrete, but not before free water has disappeared from concrete surface.
- D. Curing Methods: Cure concrete by moisture curing, moisture-retaining-cover curing, curing compound, or a combination to these as follows:

Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:

- a. Water.
- b. Continuous water-fog spray.
- c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.

Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

3.9 PAVEMENT TOLERANCES

- A. Comply with tolerances of ACI 117 and as follows:
 1. Elevation: 1/4 inch
 2. Thickness: Plus 3/8 inch minus 1/4 inch.
 3. Surface: Gap below 10-foot-long, unlevelled straightedge not to exceed 1/4 inch.
 4. Lateral Alignment and Spacing of Tie Bars and Dowels; 1 inch.
 5. Vertical Alignment of Tie-Bars and Dowels: 1/4 inch.
 6. Alignment of Tie-Bar End Relative to Line Perpendicular to Pavement Edge: 1/2 inch.
 7. Alignment of Dowel-Bar End Relative to Line Perpendicular to Pavement Edge: Length of dowel 1/4 inch per 12 inches.
 8. Joint Spacing: 3 inches.
 9. Contraction Joint Depth: Plus 1/4 inch, no minus.
 10. Joint Width: Plus 1/8 inch, no minus.

3.10 PAVEMENT MARKING

- A. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Owner's Representative.
- B. Allow concrete pavement to cure for 28 days and be dry before starting pavement marking.
- C. Sweep and clean surface to eliminate loose material and dust.
- D. Apply paint with mechanical equipment to produce pavement markings of dimensions indicated with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 15 mils.

3.11 WHEEL STOPS

- A. Securely attach wheel stops into pavement with #4 rebar steel, minimum length 24 inches.

3.12 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified testing and inspection agency to sample materials, perform tests, and submit test reports during concrete placement. Sampling and testing for quality control may include those specified in this Article.
- B. Testing Services: Testing shall be performed according to the following requirements:
 1. Sampling Fresh Concrete: Representative samples of fresh concrete shall be obtained according to ASTM C172, except modified for slump to comply with ASTM C94.
 2. Slump: ASTM C 143; one test at point of placement for each compressive-strength test, but not less than one test for each day's pour of each type of concrete. Additional tests will be required when concrete consistency changes.
 3. Air Content: ASTM C231, pressure method; one test for each compressive-strength test, but not less than one test for each day's pour of each type of air-entrained concrete.

4. Concrete Temperature: ASTM C1064; one test hourly when air temperature is 40 degrees F and below and 80 degrees F and above, and one test for each set of compressive-strength specimens.
 5. Compression Test Specimens: ASTM C31/C 31M; one set of four standard cylinders for each compressive-strength test, unless otherwise indicated. Cylinders shall be molded and stored for laboratory-cured test specimens unless field-cured test specimens are required.
 6. Compressive-Strength Tests: ASTM C39; one set for each day's pour of each concrete class exceeding 5 cu. Yd, but less than 25 cu. Yd., plus one set for each additional 50 cu. Yd. One specimen shall be tested at 7 days and two specimens at 28 days; one specimen shall be retained in reserve for later testing if required.
 7. When frequency of testing will provide fewer than five compressive-strength tests for a given class of concrete, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
 8. When total quantity of a given class of concrete is less than 50 cu. yd. Owner's Representative may waive compressive-strength testing if adequate evidence of satisfactory strength is provided.
 9. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, current operations shall be evaluated and corrective procedures shall be provided for protecting and curing in-place concrete.
 10. Strength level of concrete will be considered satisfactory if averages of sets of three consecutive compressive-strength test results equal or exceed specified compressive strength and no individual compressive-strength test result falls below specified compressive-strength by more than 500 psi.
- C. Test results shall be reported in writing to Owner's Representative, concrete manufacturer, and Contractor within 24 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing agency, concrete type and class, location of concrete batch in pavement, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7- and 14- day tests.
- D. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Owner's Representative but will not be used as the sole basis for approval or rejection.
- E. Additional Tests: Testing agency shall make additional tests of the concrete when test results indicate slump, air entrainment, concrete strengths, or other requirements have not been met, as directed by Owner's Representative. Testing agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed.

3.13 REPAIRS AND PROTECTION

- A. Remove and replace concrete pavement that is broken, damaged, or defective, or does not meet requirements in this Section. Contractor is required to repair or replace any defects that occur during the two year warranty and guarantee period as set forth in the contract documents. To include but not limited to the following:
- B. Work showing, a patch, chips or other cracking appearance or other finish blemishes or apparent "lap" marks of improper troweling will be rejected, removed and replaced at the Contractor's expense.
- C. The Contractor shall erect barricades, snow fencing, or take appropriate measures to totally protect concrete until it has thoroughly hardened. Any area marked or defaced in any manner shall be removed to the nearest expansion or contraction joint and be replaced at no additional costs to the Owner.
- D. No patched or cover materials will be accepted on a new pour, to hide any defects in original surface. Only with prior approval from Owner's Representative.
 1. Spauling.
 2. Cracking over 1/8" wide.
 3. Any settling greater than 3/4", that would cause uneven surfaces will be replaced.

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- E. Drill test cores where directed by Owner's Representative when necessary to determine magnitude of cracks of defective areas. Fill drilled core holes in satisfactory pavement areas with portland cement concrete bonded to pavement with epoxy adhesive.
- F. Protect concrete from damage. Exclude traffic from pavement for at least 14 days after placement. When construction traffic is permitted, maintain pavement as clean as possible by removing surface stains and spillage of materials as they occur.
- G. Maintain concrete pavement free of stains, discoloration, dirt, and other foreign material. Sweep concrete pavement not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION 02751 – CEMENT CONCRETE PAVEMENT (REVISED 2005)

02920 – SEEDING AND SODDING (REVISED 2005)

PART 1 - GENERAL

1.1 Related Documents

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Seeding.
 - 2. Sodding.
 - 3. Plugging.
 - 4. Meadow grasses and wildflowers.
 - 5. Sod renovation.
- B. Related Sections include the following:
 - 1. Division 2 Section "Site Clearing" for topsoil stripping and stockpiling.
 - 2. Division 2 Section "Earthwork" for excavation, filling and backfilling, and rough grading.
 - 3. Division 2 Section "Subdrainage" for subsurface drainage.

1.3 DEFINITIONS

- A. Finish Grade: Elevation of finished surface of planting soil.
- B. Manufactured Soil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.
- C. Planting Soil: Native or imported topsoil, manufactured topsoil, or surface soil modified to become topsoil; mixed with soil amendments.
- D. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill immediately beneath planting soil.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture stating the botanical and common name and percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.
Certification of each seed mixture for turf grass sod, identifying source, including name and telephone number of supplier.
- C. Product Certificates: For soil amendments and fertilizers, signed by product manufacturer.
- D. Qualification Data: For landscape installer.
- E. Material Test Reports: For existing surface soil and imported topsoil
- F. Maintenance Instructions: Upon completion of all sodding operations, the Contractor shall notify the Owner's Representative to inspect the work. Upon inspection, if all work is acceptable, the Owner's Representative shall record that date and shall issue a "Conditional Acceptance" letter

which shall state that the Contractor shall maintain all sodded areas as specified according to the following length of time. As indicated in section 1.8.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: All work specified herein shall be performed under the direct supervision of a Superintendent thoroughly familiar with the work of this section who shall be at the project site for the duration of the work in this section.
 - 1. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when planting is in progress.
- B. Installer Qualifications: All work specified herein shall be performed under the direct supervision of a Superintendent thoroughly familiar with the work of this section who shall be at the project site for the duration of the work in this section.
 - 1. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when planting is in progress.
- C. Soil-Testing Laboratory Qualifications: An independent laboratory, recognized by the State Department of Agriculture, with experience and capability to conduct the testing indicated and that specializes in types of tests to be performed.
- D. Topsoil Analysis: Furnish soil analysis by a qualified soil-testing laboratory stating percentages of organic matter; gradation of sand, silt, and clay content; cation exchange capacity; sodium absorption ratio; deleterious material; pH; and mineral and plant-nutrient content of topsoil. Report suitability of topsoil for Sod growth. State recommended quantities of nitrogen, phosphorus, and potash nutrients and soil amendments to be added to produce satisfactory topsoil.
- E. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

1.6 DELIVER, STORAGE, AND HANDLING

- A. Seed: Deliver seed in original sealed, labeled, and undamaged containers.
- B. Sod: Harvest, deliver, store, and handle sod according to requirements in TPI's "Specifications for Turfgrass Sod Materials" and "Specifications for Turfgrass Sod Transplanting and Installation" in its "Guideline Specifications to Turfgrass Sodding."

1.7 SCHEDULING

- A. Planting Restrictions: Plant during one of the following periods unless otherwise approved by Owner's Representative. Coordinate plating periods with maintenance periods to provide required maintenance from date of Substantial Completion.
 - 1. Sodding: April 15th-October 15th.
 - 2. Seeding: March 1st-September 15th.
 - 3. Irrigated Native Seeding: March 1st-September 15th.
 - 4. Non Irrigated Native Seeding: November 1st-May 15th.
- B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit. No sodding shall take place when the site is wet or during freezing temperatures.

1.8 TURF MAINTENANCE

- A. Begin maintenance immediately after each area is planted and continue until acceptable Sod is established, but for not less than the following periods:
 - 1. Seeded Turf: 60 days from date of Substantial Completion.
 - 2. Native Seeding: 60 days from date of Substantial Completion.
 - 3. Sodded Turf: 30 days from date of Substantial Completion.
- B. A period of 30 calendar days minimum, which shall be referred to as the "Sod Maintenance Period." At the end of this period, the sodded areas shall be given "Final Acceptance" if the sod is in a healthy condition and of a normal green color, with no bare areas larger than six (6) square inches. Mowing of sod should occur (3) days before "Final Acceptance." If sod is installed in late October, a "Final Acceptance" for sod will not be issued, until the following spring.
- C. At the end of the maintenance period, the Owner's Representative shall, within five (5) calendar days, inspect the work, and if the work is acceptable, he shall issue a Final Acceptance Sod

Work” letter which shall relieve the Contractor from further obligations for Sod work only. Final acceptance of Sod work may be given independently of final acceptance of all work under this contract.

D. The maintenance period for this work shall begin immediately after each area is sodded and shall continue in accordance with the following requirements:

1. Minor vandalism or other damage to the sodded areas shall be the responsibility of the Contractor until all work receives Final Acceptance by the Owner’s Representative. Major vandalism or damage caused by others through no fault of the Contractor or his subcontractor shall be brought to the attention of the Owner’s Representative who will be the sole judge as to the extent of such damage. If such damage is deemed to be major by the Owner’s Representative, any work necessary to repair the seeded or sodded area to an acceptable condition shall be paid for by the Owner under the provisions of “extra work” stated in the General Conditions, if such work is authorized by the Owner’s Representative.

2. Acts of God: Minor damage to the sodded areas shall be the responsibility of the Contractor until all work receives Final Acceptance by the Owner’s Representative. Major damage caused by flood, hail, storm, wind, or large rain storm, and through no fault of the Contractor to protect his work, shall immediately be brought to the attention of the Owner’s Representative who will be the sole judge as to the extent of such damage. Major damage shall be repaired by the Contractor and paid for by the Owner, if such work is authorized by the Owner’s Representative.

a. When full maintenance period has not elapsed before end of planting season, or is Sod is not fully established, continue maintenance during next planting season.

E. Maintain and establish Sod by watering, fertilizing, weeding, mowing, trimming, replanting, and other operations. Rolls, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth turf.

1. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch. Anchor as required to prevent displacement.

F. Watering: Provide and maintain temporary piping, hoses, and turf-watering equipment to convey water from sources and to keep Sod uniformly moist.

1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay our temporary watering system to avoid walking over muddy or newly planted areas.

2. Water Sod at a minimum rate of 1 1/2” to 2” per week.

G. The Contractor shall be responsible for watering and mowing of the sodded areas only until Final Acceptance. The bluegrass sod shall be maintained at a height of three inches (3”) and of four inches (4”). If grass exceeds four inches (4”) in height before mowing, no more than (1/3) of top growth shall be cut off at anyone time. All clippings shall be removed from site. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowing to maintain consistent grass height. Sufficient water shall be applied during the maintenance period to maintain the sod in a healthy condition, allowing it to knit together and develop a deep root system. Care should be given to avoid standing surface water, or erosion from over watering. Failure of the irrigation system shall not relieve the Contractor from applying water required during this period.

1.9 NATIVE SEEDING MAINTENANCE

A. Begin maintenance immediately after each area is planted and continue until acceptable meadow is established, but for not less than 60 days from date of Substantial Completion. The maintenance period for this work shall begin immediately after all areas are seeded and shall continue in accordance with the following requirements:

1. All seeded areas shall have suitable signs erected at important points, notifying the public to keep off.

B. Minor vandalism or other damage to the seeded areas shall be the responsibility of the Contractor until all work receives Final Acceptance by the Owner’s Representative. Major vandalism or damage caused by others through no fault of the Contractor or his subcontractor shall be brought to the attention of the Owner’s Representative who will be the sole judge as to the extent of such damage. If such damage is deemed to be major by the Owner’s Representative, any work necessary to repair the seeded area to an acceptable condition shall be paid for by the Owner

under the provision of "extra work" stated in the General Conditions, if such work is authorized by the Owner's Representative.

- C. Acts of God: Minor damage to the seeded areas shall be the responsibility of the Contractor until all work receives Final Acceptance by the Owner's Representative. Major damage caused by flood, hail storm, wind or large rain storm, and through no fault of the Contractor to protect his work, shall immediately be brought to the attention of the Owner's Representative who will be the site judge as to the extent of such damage. Major damage shall be repaired by the Contractor and paid for by the Owner under the provisions of City of Colorado Springs Engineering Division Standard Specifications Section 100.23 "Changed Conditions", if such work is authorized by the Owner's Representative.
- D. The Contractor shall be responsible for watering and mowing the seeded areas only until final Acceptance. Mowing shall be conducted at a maximum of six inches (6"), and mowed down to four inches (4").
- E. Upon completion of all seeding operations, the Contractor will notify the Owner's Representative to inspect the work. Upon inspection, if all work is acceptable, the Owner's Representative shall record that date and shall issue a "Conditional Acceptance" letter which shall state that the Contractor shall maintain all seeded areas as specified according to the following length of time.
- F. Period of 60 calendar days minimum, which shall be referred to as the "Seeded Area Maintenance Period". AT the end of this period, the seeded areas shall be given "Final Acceptance" if the seed has germinated and there are no bare areas larger than six (6) square inches in diameter shall be re-seeded. AT the end of the maintenance period, the Owner's Representative shall, within five (5) calendar days, inspect the work, and if the work is acceptable, he shall relieve the Contractor from further obligations for seeding work only. Final acceptance of seeding work may be given independently of final acceptance of all work under this contract.
- G. Maintain and establish meadow by watering, weeding, mowing, trimming, replanting, and other operations. Roll, regrade and replant bare or eroded areas and remulch.
- H. Watering: Provide and maintain temporary piping, hoses, and turf-watering equipment to convey water from sources and to keep meadow uniformly moist.
 - 1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
 - 2. Water meadow at a minimum rate of 1/2 inch per week for 8 weeks after planting

PART 2 - PRODUCTS

2.1 SEED

- A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Journal of Seed Technology; Rules for Testing Seeds" for purity and germination tolerances.
- B. Seed Species: State-certified seed of grass species, as follows:
- C. Seed Species: As specified on drawings.

2.2 TURFGRASS SOD

- A. Turfgrass Sod: Blended Kentucky Bluegrass.

2.3 NATIVE GRASSES AND WILDFLOWERS

- A. Wildflower Seed: Fresh, clean, dry, new seed, mixed species as follows:
- B. Native Grass Seed: Fresh, clean, dry, new seed, mixed species as follows:
- C. Wildflower and Native Grass Seed: Fresh, clean, dry, new seed, mixed species as follows:
- D. Seed Carrier: Inert material, sharp clean sand or perlite, mixed with seed at a ratio of not less than two parts seed carrier to one part seed.

2.4 TOPSOIL

- A. Topsoil: ASTM D 5268, pH range of 5.5 to 7, a minimum of 4-percent organic material content; free of stones 3/4 inch or larger in any dimension and other extraneous materials harmful to plant growth.

Topsoil Source: Reuse surface soil stockpiled on-site. Verify suitability of stockpiled surface soil to produce topsoil. Clean surface soil of roots, plants, sod, stones, clay lumps, and other extraneous materials harmful to plant growth.

Topsoil Source: Import topsoil or manufactured topsoil from off-site sources. Obtain topsoil displaced from naturally well-drained construction or mining sites where topsoil occurs at least 4 inches deep; do not obtain from agricultural land, bogs or marshes.

Topsoil Source: Amend existing in-place surface soil to produce topsoil. Verify suitability of surface soil to produce topsoil. Clean surface soil of roots, plants, sod, stones, clay lumps, and other extraneous materials harmful to plant growth.

2.5 ORGANIC SOIL AMENDMENTS

- A. Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through **1-inch** sieve; soluble salt content of 5 to 10 decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:
 - 1. Organic Matter Content: 50 percent of dry weight.
 - 2. Feedstock: Agricultural, food, or industrial residuals; biosolids; yard trimmings; or source-separated compostable mixed solid waste.
- B. Peat: Sphagnum peat moss, partially decomposed, finely divided or granular texture, with a pH range of 3.4 to 4.8.
- C. Peat: Finely divided or granular texture, with a pH range of 6 to 7.5, containing partially decomposed moss peat, native peat, or reed-sedge peat and having a water-absorbing capacity of 1100 to 2000 percent.
- D. Wood Derivatives: Decomposed, nitrogen-treated sawdust, ground bark, or wood waste; of uniform texture, free of chips, stones, sticks, soil or toxic materials.
 - 1. In lieu of decomposed wood derivatives, mix partially decomposed wood derivatives with at least 0.15 lb. of ammonium nitrate or 0.25 lb. of ammonium sulfate per cubic foot of loose sawdust or ground bark.
- E. Manure: Well-rotted, unleached, stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, weed seed, and material harmful to plant growth.

2.6 PLANTING ACCESSORIES

- A. Selective herbicides: EPA registered and approved, of type recommended by manufacturer for application.

2.7 FERTILIZER

- A. Superphosphate: Commercial, phosphate mixture, soluble; a minimum of 20 percent available phosphoric acid.
- B. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of ureaformaldehyde, phosphorous, and potassium in the following composition:
 - 1. Composition: 1 lb/1000 sq. ft. of actual nitrogen, 4 percent phosphorous, and 2 percent potassium, by weight.
 - 2. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing agency.
- C. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 30 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:
 - 1. Composition: 25 percent nitrogen, 10 percent phosphorous, and 10 percent potassium, by weight.
 - 2. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing agency.

2.8 MULCHES

- A. Straw Mulch: Provide air-dry, clean, mildew-and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.
- B. Peat Mulch: Sphagnum peat moss, partially decomposed, finely divided or granular texture, with a pH range of 3.4 to 4.8.
- C. Peat Mulch: Finely divided or granular texture, with a pH range of 6 to 7.5, containing partially decomposed moss peat, native peat, or reed-sedge peat and having a water-absorbing capacity of 1100 to 2000 percent.
- D. Compost Mulch: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1-inch sieve; soluble salt content of 5 to 10 decisiemens/m; not to exceeding 0.5 percent inert contaminants an free of substances toxic to plantings; and as follows:
 - 1. Organic Matter Content: **50** percent of dry weight.
 - 2. Feedstock: Agricultural, food, or industrial residuals; biosolids; yard trimmings; or source-separated or compostable mixed solid waste.
- E. Fiber Mulch: Biodegradable, dyed-wood, cellulose-fiber mulch; nontoxic; free of plat-growth or germination inhibitors; with a maximum moisture content of 15 percent and a pH range of 4.5 to 6.5.
- F. Nonasphaltic Tackifier: Colloidal tackifier recommended by fiber-mulch manufacturer for slurry application; nontoxic and free of plant-growth or germination inhibitors.
- G. Asphalt Emulsion: ASTM D 977, Grade SS-1; nontoxic and free of plant-growth or germination inhibitors.

2.9 EROSION-CONTROL MATERIALS

- A. Erosion-Control Blankets: Biodegradable wood excelsior, straw, or coconut-fiber mat enclosed in a photodegradable plastic mesh. Include manufacturer's recommended steel wire staples, 6 inches long.
- B. Erosion-Control Fiber Mesh: Biodegradable twisted jute or spun-coir mesh, a minimum of 0.92 lb./sq. yd., with 50 to 65 percent open area. Include manufacturer's recommended steel wire staples, 6 inches long.

2.10 PLANTING SOIL MIX

- A. Planting Soil Mix: As specified on drawings.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas to receive Turf and grass for compliance with requirements and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operations. Reference tree planting schematic for exclusion of sod within tree planting well.
 - 1. Protect adjacent and adjoining areas from hydroseeding overspray.
- B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- C. Stop all sod at the edge of the tree well.

3.3 SOD PREPARATION

- A. Limit Sod subgrade preparation to areas to be planted within forty eight hours. Installation of sod shall not be undertaken until adjacent site improvements and pavement is complete. No trucking or moving of equipment or materials will be permitted upon completed sod.
- B. All irrigation heads, valve boxers, drain valves and quick couplers shall be flagged prior to sodding operations.

- C. Newly Graded Subgrades: Loosen subgrade to a minimum depth of 6 inches. Remove stones larger than ¾ inch in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.
 - 1. Apply fertilizer directly to finish grade, prior to sodding.
 - 2. Thoroughly blend planting soil mix before spreading or spread topsoil, apply soil amendments and fertilizer on surface, and thoroughly blend planting soil mix.
 - a. Delay mixing fertilizer with planting soil if planting will not proceed within three days.
 - 3. Spread planting soil mix to a depth of 4 inches, but not less than required to meet finish grades natural settlement. Do not spread if planting soil or subgrade is frozen, muddy, or excessively wet.
 - a. Spread approximately one-half the thickness of planting soil mix over loosened subgrade. Mix thoroughly into top 4 inches of subgrade. Spread remainder of planting soil mix.
- D. Unchanged Subgrades: If Turf is to be planted in areas unaltered or undisturbed by excavating, grading, or surface soil stripping operations, prepare surface soil as follows:
 - 1. Remove existing grass, vegetation, and turf. Do not mix into surface soil.
 - 2. Loosen surface soil to a depth of at least of 6 inches. Apply soil amendments and fertilizers according to planting soil mix proportions and mix thoroughly into top 4 inches of soil. Till soil to a homogeneous mixture of fine texture.
 - a. Apply fertilizer directly to finish grade, prior to sodding.
 - 3. Remove stones larger than ¾ inches in any dimension and sticks, roots, trash, and other extraneous matter.
 - 4. Legally dispose of waste material, including grass, vegetation, and turf, off Owner's property.
- E. Finish Grading: Finished grading and preparation of the entire sodded or seeded bed areas shall be achieved by disc-harrow or other approved method to a depth of six-inches (6"), or determined by Owner's Representative), fine ranking and/or light dragging until the surface is smooth, friable, and or uniform fine texture and compaction, having no lumps or stones over ¾" inch. No sod shall be laid on any area which has not been so prepared. Obtain the Owner's Representative's approval of prepared areas prior to sodding. A depth of one-inch (1") shall be maintained along sidewalk, before sod is installed.
- F. Finish grades shall be as indicated on the drawing, subject to minor adjustments, as may be directed by the Owner's Representative. Tops and toes of slopes shall be rounded, and the necessary swales for the run-off of surface water shall be carefully maintained with sufficient slope.
- G. Moisten prepared Sod areas before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.
- H. Restore areas if eroded or otherwise disturbed after finish grading and before planting.

3.4 SEEDING

- A. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
 - 1. Do not use wet seed or seed that is moldy or otherwise damaged.
- B. Sow seed at the rate: As specified on drawings.
- C. Rake seed lightly into top 1/4 inch topsoil, roll lightly, and water with fine spray.
- D. Protect seeded areas with slopes exceeding 3:1 or greater with erosion-control blankets installed and stapled according to manufacturer's written instructions.
- E. Protect seeded areas with slopes not exceeding 3:1 by spreading straw mulch. Spread uniformly at a minimum rate of 2 tons/acre to form a continuous blanket 1-1/2 inches in loose depth over seeded areas. Spread by hand, blower, or other suitable equipment.
 - 1. Anchor straw mulch by crimping into topsoil with suitable mechanical equipment.
 - 2. Bond straw mulch by spraying with asphalt emulsion at the rate of 10 to 13 gal. /1000 sq. ft. Take precautions to prevent damage or staining of structures or other plantings adjacent to mulched areas. Immediately clean damaged or strained areas.

3.5 HYDROSEEDING

- A. Hydroseeding: Mix specified seed, fertilizer, and fiber mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.
 1. Mix slurry with non-asphaltic tackifier.
 2. Apply slurry uniformly to all areas to be seeded in a one-step process. Apply mulch at a minimum rate of 1500-lb/acre dry weight but not less than the rate required to obtain specified seed-sowing rate.
 3. Apply slurry uniformly to all areas to be seeded in a two-step process. Apply first slurry application at a minimum rate of 500-lb/acre dry weight but not less than the rate required to obtain specified seed-sowing rate. Apply slurry cover coat of fiber mulch at a rate of 1000 lb./acre.

3.6 SODDING

- A. Laying Sod: Lay sod within 24 hours of harvesting. Sod shall be laid on a firm moist bed with tight joints so that no voids occur under or between strips. All ends should be tucked and unrolled. Stagger sod strips or pads to offset joints in adjacent courses. Avoid damage to subgrade or sod during installation. Any depressions or mounds occurring after sodding shall be corrected prior to acceptance of work. No sod shall be laid on a frozen bed or installed on Fridays. No sod shall be laid within the tree planting well.
- B. Sod shall be blended Kentucky Bluegrass turf, approved by owner and supplied from a single approved source. Sod shall be one inch (1") minimum thick dense and free of weeds and stones. All sod shall be inspected and approved by the Owner's Representative at the time of delivery. Sod shall be sufficiently moist so that the soil will adhere to the roots when handled. Delivered sod shall contain no more than five (5) percent broken rolls. Sod that has become moldy, withered, or yellow from storage or drying, or does not meet minimum thickness requirements may be rejected at the time of planting. Sod out for more than 24 hours from the time of cutting shall not be used.
- C. As soon as sod has been laid, it shall be watered and rolled using a Jackson Sod Roller, True Temper Model 12LR with 240# of water approved equals, so that the sod makes a tight bond to the sod bed. Work sifted soil or fine sand into minor cracks between pieces of sod; remove excess to avoid smothering sod and adjacent grass.
 1. Lay sod across angle of slopes exceeding 3:1.
 2. Anchor sod on slopes exceeding 4:1 with wood pegs or steel staples spaced as recommended by sod manufacturer but not less than 2 anchors per sod strip to prevent slippage.
- D. Saturate sod with fine water spray within two hours of planting. During first week, water daily or more frequently as necessary to maintain moist soil to a minimum depth of 1-1/2 inches below sod.

3.7 SOD RENOVATION

- A. Renovate existing sod damaged by Contractor's operations, such as storage of materials or equipment and movement of vehicles.
 1. Re-establish sod where settlement or washouts occur or where minor regrading is required.
- B. Remove sod and vegetation from diseased or unsatisfactory sod areas: do not bury in soil.
- C. Remove topsoil containing foreign materials resulting from Contractor's operations, including oil drippings, fuel spills, stone, gravel, and other construction materials, and replace with new topsoil.
- D. Mow, dethatch, core aerate, and rake existing turf.
- E. Remove weeds before seeding. Where weeds are extensive, apply selective herbicides as required. Do not use pre-emergence herbicides.
- F. Remove waste and foreign materials, including weeds, soil cores, grass, vegetation, and turf, and legally dispose of them off Owner's property.
- G. Till ripped, bare and compacted areas thoroughly to a soil depth of 6 inches.
- H. Apply soil amendments and initial fertilizers required for establishing new Turf and mix thoroughly into top 4 inches of existing soil. Provide new planting soil to fill low spots and meet finish grades.
- I. Apply sod as required for new Turf.

- J. Water newly planted areas and keep moist until new sod is established.

3.8 SATISFACTORY TURF

- A. Satisfactory Seeded Turf: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities. The maintenance period for this work shall begin immediately after all areas are seeded and shall continue in accordance with the following requirements.
- B. All seeded areas shall have suitable signs erected at important points, notifying the public to keep off. Minor vandalism or other damage to the seeded areas shall be the responsibility of the Contractor until all work receives Final Acceptance by the Owner's Representative. Major vandalism or damage caused by others through no fault of the Contractor or his subcontractor shall be brought to the attention of the Owner's Representative who will be the sole judge as the extent of such damage. If such damage is deemed to be major by the Owner's Representative, any work necessary to repair the seeded area to an acceptable condition shall be paid for by the Owner under the provision of "extra work" stated in the General Conditions, if such work is authorized by the Owner's Representative.
- C. Acts of God: Minor damage to the seeded areas shall be the responsibility of the Contractor until all work receives Final Acceptance by the Owner's Representative. Major damage caused by flood, hail storm, wind or large rain storm, and through no fault of the Contractor to protect his work, shall immediately be brought to the attention of the Owner's Representative who will be the sole judge as to the extent of such damage. Major damage shall be repaired by the Contractor and paid for by the Owner, if such work is authorized by the Owner's Representative.
- D. The Contractor shall be responsible for watering and mowing the seeded areas only until Final Acceptance. Mowing shall be maintained at a height of three inches (3") and mowed only by equipment with sharp blades. Sod shall be mowed before grass reaches a height of four inches (4"). If grass exceeds four inches (4") in height before mowing, no more than (1/3) of top growth shall be cut off at any one time.
- E. Upon completion of all seeding operations, the Contractor will notify the Owner's Representative to inspect the work. Upon inspection, if all work is acceptable, the Owner's Representative shall record that date and shall issue a "Conditional Acceptance" letter which shall state that the Contractor shall maintain all seeded areas as specified according to the following length of time.
- F. Period of 60 calendar days minimum, which shall be referred to as the "Seeded Area Maintenance Period". At the end of this period, the seeded areas shall be given "Final Acceptance" if the seed has germinated and there are no bare areas larger than six (6) square inches. All bare areas larger than (6) square inches in diameter shall be re-seeded.
 - 1. At the end of the maintenance period, the Owner's Representative shall, within five (5) calendar days, inspect the work, and if the work is acceptable, he shall relieve the Contractor from further obligations for seeding work only. Final acceptance of seeding work may be given independently of final acceptance of all work under this contract.
- G. Satisfactory Sodded Turf: At the end of maintenance period, a healthy, well-rooted, even-colored, viable Sod has been established, free of weeds, open joints, bare areas, and surface irregularities.
- H. Re-establish Turf that does not comply with requirements and continue maintenance until Turf are satisfactory.

3.9 NATIVE SEEDING

- A. Method of Application: Refer to Detail Supplement or drawings.
- B. Do not broadcast or drop seed when wind velocity exceeds 5 mph. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
 - 1. Do not use wet seed or seed that is moldy or otherwise damaged.
- C. Sowing rates vary with mix of species but are usually much lighter than turfgrass seed application rates. Revise to suit Project.
- D. Sow seed at the net rate of 6 oz. /1000 sq. ft.
- E. Brush seed into top 1/16 inch of topsoil, roll lightly, and water with fine spray.
- F. Protect seeded areas from hot, dry weather or drying winds by applying compost mulch within 24 hours after completing seeding operations. Soak and scatter uniformly to a depth of 3/16 inch and roll to a smooth surface.

- G. Water newly planted areas and keep moist until meadow is established.

3.10 CLEANUP AND PROTECTION

- A. Promptly remove soil and debris created by Sod work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.
- B. Erect barricades and warning signs as required to protect newly planted areas from traffic. Maintain barricades throughout maintenance period and remove after Sod is established. Remove Erosion-control measures after grass establishment period.

END OF SECTION 02920 – SEEDING AND SODDING (REVISED 2005)

SCHEDULE F

EXHIBITS

This section includes the examples of the forms used for submitting the required bonds as well as a sample contract format, which will be issued as a result of this solicitation:

- Exhibit 1 -- Bid Bond
- Exhibit 2 -- Performance Bond
- Exhibit 3 -- Labor and Material Payment Bond
- Exhibit 4 -- Maintenance Bond
- Exhibit 5 -- Sample Contract
- Exhibit 6 -- Minimum Insurance Requirements
- Exhibit 7 -- Change Order Form
- Exhibit 8 -- Index of Drawings

CITY OF COLORADO SPRINGS

EXHIBIT 1 CITY OF COLORADO SPRINGS BID BOND

1. KNOW ALL MEN BY THESE PRESENTS, THAT:

(Name) _____
(Address) _____ As Principal, hereinafter called Principal, and

(SURETY Name) _____ a corporation organized and existing under the laws of the State of:

(SURETY Address) _____
and AUTHORIZED TO DO BUSINESS IN THE STATE OF COLORADO, as Surety, hereinafter called Surety, are held firmly bound to the CITY OF COLORADO SPRINGS, COLORADO, as Oblige, hereinafter called the Oblige, in the sum of: (Insert Proposal Amount in Words) (\$ _____ DOLLARS),

lawful money of the United States of America, for payment of which sum well and truly to be made, the Principal and the Surety bind themselves, their heirs, executors, successors and assigns, jointly and severally, firmly by these presents.

2. WHEREAS, the Principal has submitted to the Oblige, a contract bid dated the _____ day of _____ For the following contract:
B16-022NS UTE VALLEY PARK TRAILHEAD AT UTE VALLEY PARK

3. NOW THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH THAT, If Principals bid is accepted by Oblige and Principal is awarded the contract in whole or in part, and the Principal shall enter into the contract with the Oblige in accordance with the terms of such bid, and give such Payment, Performance, and Maintenance bond or bonds as may be specified in the bidding or contract documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such contract and give such bond or bonds, if the Principal shall promptly pay to the Oblige the amount of this bond as set forth herein above, then this obligation shall be null and void, otherwise this obligation to remain in full force and effect.

Signed and sealed on the dates set forth below:

(Witness) _____ FOR: _____ (Principals Name)

(Seal) _____ BY: _____

(Seal) _____ ITS: _____
This _____ day of _____

(Witness) _____ FOR: _____ (Surety's Name)

(Seal) _____ BY: _____

(Seal) _____ ITS: _____
This _____ Day of _____

Bond # _____ This Bond (is) (is not) a SBA Guaranteed Bond.

CITY OF COLORADO SPRINGS

EXHIBIT 2 – PERFORMANCE BOND
CITY OF COLORADO SPRINGS PERFORMANCE BOND

1. KNOW ALL MEN BY THESE PRESENTS, THAT:

(Name)
(Address) As Principal, hereinafter called Principal, and
(SURETY Name) a corporation organized and existing under the laws of the State of:
(SURETY Address)

and AUTHORIZED TO DO BUSINESS IN THE STATE OF COLORADO, as Surety, hereinafter called Surety, are held firmly bound to the CITY OF COLORADO SPRINGS, COLORADO, as Obligee, hereinafter called the Obligee, in the sum of: (Insert Proposal Amount in Words)

(\$ [redacted] DOLLARS),

lawful money of the United States of America, for payment of which sum well and truly to be made, the Principal and the Surety bind themselves, their heirs, executors, successors and assigns, jointly and severally, firmly by these presents.

2. WHEREAS, the Principal and the Obligee have entered into, a contract dated the [] day of [] For the following project: B16-022NS UTE VALLEY PARK TRAILHEAD AT UTE VALLEY PARK

Contract # [] which contract is by reference made a part hereof, and referred to as the Contract.

3. NOW THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH THAT if the Principal shall promptly and faithfully perform all terms, conditions and other obligations of the Contract, and any modifications or extensions thereof granted by the Obligee, then this obligation shall be null and void: otherwise this obligation shall remain in full force and effect.

4. The Surety for value received agrees that no extension of time, change in, addition to, or other alteration modification of the terms, conditions or obligations of the Contract or work to be performed thereunder, or any forbearance on the part of either the Obligee or the Principal to the other shall in any way release or affect the liability or obligation of this Bond, and the Surety hereby waives notice of any such extension of time, change, addition, modification, alteration or forbearance.

Signed and sealed on the dates set forth below:

(Witness) FOR: (Principals Name)

BY:

(Seal) ITS: This [] Day of []

(Witness) FOR: (Surety's Name)

BY:

(Seal) ITS: This [] Day of []

Bond # [] This Bond [] (is) [] (is not) a SBA Guaranteed Bond.

CITY OF COLORADO SPRINGS

EXHIBIT 3 - CITY OF COLORADO SPRINGS LABOR & MATERIAL PAYMENT BOND

1. KNOW ALL MEN BY THESE PRESENTS, THAT:

(Name)

As Principal, hereinafter called Principal, and

(Address)

(SURETY Name)

a corporation organized and existing under the laws of the State of:

(SURETY Address)

and AUTHORIZED TO DO BUSINESS IN THE STATE OF COLORADO, as Surety, hereinafter called Surety, are held firmly bound to the CITY OF COLORADO SPRINGS, COLORADO, as Oblige, hereinafter called the Oblige, in the sum of: (Insert Proposal Amount in Words)

(\$ DOLLARS),

lawful money of the United States of America, for payment of which sum well and truly to be made, the Principal and the Surety bind themselves, their heirs, executors, successors and assigns, jointly and severally, firmly by these presents.

2. WHEREAS, the Principal and the Oblige have entered into,

a contract dated the _____ day of _____ For the following project:

B16-022NS UTE VALLEY PARK TRAILHEAD AT UTE VALLEY PARK

Contract # _____ which contract is by reference made a part hereof, and referred to as the Contract.

3. NOW THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH THAT, if the Principal shall promptly make payments of all amounts lawfully due to all persons supplying or furnishing the Principal or the Principals subcontractors with labor, materials, rental machinery, tools or equipment used or performed in the prosecution of the work provided for in the Contract; and if the Principal shall indemnify and save harmless the Oblige to the extent of any payments in connection with the carrying out of the Contract which the Oblige may be required to pay under the law, all in accord with Colorado State Law, Section 38-26-105 C.R.S., then this obligation shall be null and void; otherwise this obligation shall remain in full force and effect.

AND FURTHER, should the Principal or the Principals subcontractors fail to duly pay for any labor, materials, team hire, sustenance, provisions, provender, or other supplies used or consumed by the Principal or the Principals subcontractors in the performance of the work contracted to be done or fails to pay any person who supplies rental machinery, tools or equipment, all amounts due as the result of the use of such machinery, tools, or equipment, in the prosecution of the work under the Contract, the Surety shall pay the same in an amount not exceeding the sum specified in this Bond together with interest at the rate of eight percent per annum, in accord with Colorado State Law, Section 38-26-106 C.R.S.

In accord with Colorado State Law, Section 38-26-105 C.R.S., actions against the Principal and Surety under this Bond shall be brought within six months after the final completion of the Contract as defined by the ordinances, rules and regulations of the City of Colorado Springs, Colorado, a home rule City, and not afterwards.

4. The Surety for value received agrees that no extension of time, change in, addition to, or other alteration or modification of the terms, conditions or obligations of the Contract or work to be performed thereunder, or any forbearance on the part of either the Oblige or the Principal to the other shall in any way release or affect the Surety's liability or obligation on this Bond, and the surety hereby waives notice of any such extension of time, change, addition, modification, alteration or forbearance.

Signed and sealed on the dates set forth below:

(Witness) FOR: _____
(Principals Name)

CITY OF COLORADO SPRINGS

Page Two (2) of Labor & Material Payment Bond

(Seal) BY: _____
ITS: _____
This _____ day of _____
FOR: _____
(Witness) _____ (Surety's Name)
BY: _____
ITS: _____
(Seal) This _____ day of _____
Bond # _____ This Bond ___ (is) ___ (is not) a SBA Guaranteed Bond.

CITY OF COLORADO SPRINGS

EXHIBIT 4 - CITY OF COLORADO SPRINGS MAINTENANCE BOND

1. KNOW ALL MEN BY THESE PRESENTS, THAT:

(Name) _____ As Principal, hereinafter called Principal, and
(Address) _____
(SURETY Name) _____ a corporation organized and existing under the laws of the State of:
(SURETY Address) _____

and AUTHORIZED TO DO BUSINESS IN THE STATE OF COLORADO, as Surety, hereinafter called Surety, are held firmly bound to the CITY OF COLORADO SPRINGS, COLORADO, as Oblige, hereinafter called the Oblige, for the use and benefit of claimants as herein below defined, in the amount of: (Insert Proposal Amount in Words)

(\$ _____ DOLLARS),

lawful money of the United States of America, together with interest as may be provided by law, for the maintenance and guarantee obligations of the Contract, for the payment whereof Principal and Surety bind themselves, their heirs, executors, successors and assigns, jointly and severally, firmly by these presents.

2. WHEREAS, the Principal and the Oblige have entered into,

a contract dated the _____ day of _____ For the following project:

B16-022NS UTE VALLEY PARK TRAILHEAD AT UTE VALLEY PARK

Contract # _____ which contract is by reference made a part hereof, and referred to as the Contract.

3. NOW THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH THAT, if the Principal shall promptly, properly and without cost to Oblige perform all maintenance and other guarantee obligations under the terms of the Contract, including any modifications or extensions thereof granted by the Oblige, for a period of TWO (2) year(s) from the date of final payment upon the Contract by the Oblige, and in the case of each correction or repair, during a period of one year after the date of said correction or repair or for the remaining period of years set forth herein, whichever is longer, then this obligation shall be null and void; otherwise this obligation shall remain in full force and effect.

4. The Surety for value received agrees that no extension of time, change in, addition to, or other alteration or modification of the terms, conditions or obligations of the Contract or work to be performed thereunder, or any forbearance on the part of either the Oblige or the Principal to the other shall in anyway release affect the Surety's liability or obligation on this Bond, and the surety hereby waives notice of any such extension of time, change, addition, modification, alteration or forbearance.

Signed and sealed on the dates set forth below:

(Witness) _____ FOR: _____ (Principals Name)

BY: _____

(Seal) _____ ITS: _____

This _____ day of _____

(Witness) _____ FOR: _____ (Surety's Name)

BY: _____

(Seal) _____ ITS: _____

This _____ day of _____

Bond # _____ This Bond __ (is) __ (is not) a SBA Guaranteed Bond.



CITY OF COLORADO SPRINGS

EXHIBIT 5 - SAMPLE CONTRACT

CONSTRUCTION CONTRACT

Contract Number:		Project Name/Title	B16-022 NS UTE VALLEY PARK TRAILHEAD AT UTE VALLEY PARK		
Vendor/Contractor					
Contact Name:		Telephone		Fax	
Address:					
Federal Tax ID #	Nicole Spindler 385-5265	Please check one:	<input type="checkbox"/> Corporation	<input type="checkbox"/> Individual	<input type="checkbox"/> Partnership
City Contracting Specialist					
Name & Phone#	City Dept Rep	Name & Phone# & Department Name			
NOT TO EXCEED Contract Amount:		City Account #	Acct Code (5)	Fund (3)	Dept (4) Project (7)

THIS FIRM FIXED PRICE CONTRACT, in the Not to Exceed amount of \$_____ made and entered into this ____ day of _____ 2016 by and between the City of Colorado Springs, Colorado, a municipal corporation, in the County of El Paso, State of Colorado, party to the first part hereinafter in the Contract Documents referred to as the "City", and _____, and trading as an individual or acting as partners consisting of or a corporation organized and existing under the laws of the State of Colorado, hereinafter in the Contract Documents called the "Contractor"; party of the second part.

WITNESSETH:

Whereas the City has heretofore prepared the necessary Contract Documents for _____, in the City of Colorado Springs; and whereas the party of the second part did on the 2nd day of MARCH 2016, submit to the City their written offer and proposal (B16-022 NS) to do the work therein described under the terms and conditions therein set forth and furnish all labor, materials, tools, equipment, transportation and services for said work in strict conformity with the accompanying Contract Documents which include: Bid Proposal, Notice of Award, Contract, Addendums, and General Conditions.

NOW, THEREFORE, it is hereby agreed that for the considerations and amounts specified in the Bid Proposal and the total contract amount designated above and in the Notice of Award, to be paid by the City to the Contractor, Contractor agrees to furnish all materials and to perform all work as set forth in his proposal and as required by the Contract Documents, which are attached hereto and incorporated herein by this reference.

- Contract Documents:
- Schedule A Bid Proposal
 - Schedule B Instructions to Bidders
 - Schedule C Terms and Conditions
 - Schedule D General Provisions
 - Schedule E Special Provisions
 - Schedule F Technical Specifications
 - Exhibit 8 Index of Drawings

Contractor agrees that the Contractor shall indemnify, defend and hold harmless the City, its officers, employees and agents, from and against any and all loss, damage, injuries, claims, cause or causes of action, or any liability whatsoever resulting from, or arising out of, or in connection with the Contractor's obligations or negligent actions under this Contract.

It is further agreed that the Contractor will start work promptly and continue to work diligently until completed. The contractor shall complete all work on an as ordered basis throughout the contract period 45 **Calendar Days** after the Notice-to-Proceed as per the specifications and drawings. The Contractor shall provide a two-year guarantee on all works performed under this contract after the job has been completed and accepted.

FISCAL OBLIGATIONS OF CITY

This Agreement is expressly made subject to the limitations of the Colorado Constitution and Section 7-60 of the Charter of the City of Colorado Springs. Nothing herein shall constitute, nor be deemed to constitute, the creation of a debt or multi-year fiscal obligation or an obligation of future appropriations by the City Council of Colorado Springs, contrary to Article X, § 20, Colo. Const., or any other constitutional, statutory, or charter debt limitation. Notwithstanding any other provision of this Agreement, with respect to any financial obligation of the City which may arise under this Agreement in any fiscal year after the year of execution, in the event the budget or other means of appropriation for any such year fails to provide funds in sufficient amounts to discharge such obligation, such failure (i) shall act to terminate this Agreement at such time as the then-existing and available appropriations are depleted, and (ii) neither such failure nor termination shall constitute a default or breach of this Agreement, including any sub-agreement, attachment, schedule, or exhibit thereto, by the City. As used herein, the term "appropriation" shall mean and include the due adoption of an appropriation ordinance and budget and the approval of a Budget Detail Report (Resource Allocations) which contains an allocation of sufficient funds for the performance of fiscal obligations arising under this Agreement.

The Contractor and the City agree and acknowledge as a part of this contract, that no Change Order or other form or order or directive may be issued by the City which requires additional compensable work to be performed, which work causes the aggregate amount payable under the contract to exceed the amount appropriated for this contract as listed above, unless the Contractor has been given a written assurance by the City that lawful appropriations to cover the costs of the additional work have been made

The Contractor and the City further agree and acknowledge as a part of this contract that no Change Order or other form or order or directive which requires additional compensable work to be performed under this contract shall be issued by the City unless funds are available to pay such additional compensable work performed under this contract, and expressly waives any rights to additional compensation, whether by law or equity, unless, prior to commencing the additional work, the contractor was given a written Change Order describing the additional compensable work to be performed, and setting forth the amount of compensation to be paid, which Change Order was signed by the authorized City Representative. It is the Contractor's sole responsibility to know, determine, and ascertain the authority of the City representative signing any Change Order under this contract.

Books of Account and Auditing. The Contractor shall make available to the City if requested, true and complete records, which support billing statements, reports, performance indices, and all other related documentation. The City's authorized representatives shall have access during reasonable hours to all records, which are deemed appropriate to auditing billing statements, reports, performance indices, and all other related documentation. The Contractor agrees that it will keep and preserve for at least seven years all documents related to the Contract, which are routinely prepared, collected or compiled by the Contractor during the performance of this contract.

The City's Auditor and the Auditor's authorized representatives shall have the right at any time to audit all of the related documentation. The Contractor shall make all documentation available for examination at the Auditor's request at either the Auditor or Contractor's office and without expense to the City.

GRATUITIES

- 1) The right of the Contractor to proceed or otherwise perform this Contract, and this Contract may be terminated if the City Manager and/or the City Contracting Manager determine, in their sole discretion, that the Contractor or any officer, employee, agent, or other representative whatsoever, of the Contractor offered or gave a gift or hospitality to a City officer, employee, agent or contractor for the purpose of influencing any decision to grant a City Contract or to obtain favorable treatment under any City Contract.
- 2) The terms "hospitality" and "gift" include, but are not limited to, any payment, subscription, advance, forbearance, acceptance, rendering or deposit of money, services, or anything of value given or offered, including but not limited to food, lodging, transportation, recreation or entertainment, token or award.
- 3) Contract termination under this provision shall constitute an breach of contract by the Contractor, and the Contractor shall be liable to the city for all costs of reletting the contract or completion of the contract. Further, if the Contractor is terminated under this provision, or violates this provision but is not terminated, the Contractor shall be subject to debarment under the City's Procurement Regulations. The rights and remedies of the City provided in this clause shall not be exclusive and are in addition to any other rights and remedies provided by law or under this Contract."

CITY OF COLORADO SPRINGS

CONTRACT SIGNATURE PAGE

The Contractor certifies in accord with Section 8-17.5-102(1) C.R.S. that, on the date the Contractor signs this contract, the Contractor does not knowingly employ or contract with an illegal alien who will perform work under this contract and that the Contractor shall participate in the e-verify program or Colorado Department of Labor and Employment program in order to confirm the employment eligibility of all employees who are newly hired for employment or to perform work under this contract. The contractor is expressly prohibited from using basic pilot program procedures to undertake pre-employment screening of job applicants while this Contract and any services under this Contract is being performed.

IN WITNESS WHEREOF, the parties have caused these presents to be executed on the day and the year first above written.

This contract is executed in one (1) original copy.

THE CITY OF COLORADO SPRINGS, COLORADO:
JEFFREY H. GREENE, CHIEF OF STAFF

SECOND PARTY:	
Corporate Name	
Signature	Date
Title	
Witness	

EXHIBIT 6 MINIMUM INSURANCE REQUIREMENTS

The minimum insurance requirements specified in the General Provisions, Section 107 shall be carried by all contractors as specified in the City’s solicitation package, Special Provisions and Standard Specifications.

- Except for workers compensation and employer’s liability insurance, the City of Colorado Springs must be named as an additional insured. Certificates of Insurance must be submitted before commencing the work and provide 30 days notice prior to any cancellation.
- All coverage furnished by contractor is primary, and that any insurance held by the City of Colorado Springs is excess and non-contributory.
- The certificates of insurance shall provide that there will be no cancellation, reduction or modification of coverage without thirty (30) days’ prior written notice to the City of Colorado Springs any cancellation. If CONTRACTOR does not comply with this section, the City may, in addition to any other remedies it may have, terminate this Agreement, subject to any provision of this Agreement.

The undersigned certifies and agrees to carry and maintain the insurance requirements indicated above throughout the contract Period of Performance.

(Name of Company)

(Signature)

(Date)

EXHIBIT 7 CITY CHANGE ORDER FORM

Change Order No: _____ Contract No: _____

Project Title: _____

Firm _____

New Expiration Date: _____ Cancel Contract: _____

Time Extension allowed _____ Days _____

Amount of this Change Order: _____

Amount of Previous Change Orders: _____

Total of Change Orders: _____

Original / Amended Contract Amount: _____

New Contract Amount: _____

Percentage Above / Below Original / Amended Amount: _____

Account Code for Change Order: _____

1. By signing below, the Contractor accepts this change order as full and complete compensation for the above specified amendments and/or additional services.
2. Unless specifically addressed and changed in this change order, all terms and conditions of the contract remain in full effect including applicability to any items that have been added or incorporated by this change order.

Description of Amendments and/or Additional Services:

Firm/Contractor Approval: _____ Date: _____

Requestor/Dept: _____ Date: _____

Manager Approval: _____ Date: _____

This Box to be used only by City Contracts Staff

Contracting Analyst Signoff: _____	Comments: _____
Vendor/Contractor: _____	
Dept: _____	
Peoplesoft: _____	
Acct Pay: _____	

EXHIBIT 8 INDEX OF DRAWINGS
UTE VALLEY PARK TRAILHEAD

SHEET 1	TITLE SHEET
SHEET 2	DETAILED GRADING AT ROUNDABOUT & TRAILHEAD
SHEET 3	UTE VALLEY TRAIL PLAN & PROFILE
SHEET 4	ROUNDABOUT FLOWLINE PROFILES
SHEET 5	ROUNDABOUT TRUCK PATH DETAILS
SHEET 6	SIGNAGE AND STRIPING
SHEET 7	DETAIL SHEET
SHEET 8	DETAIL SHEET
SHEET 9	DETAIL SHEET